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APPENDIX

TO THE

FIFTH EDITION

OF

Dr. BROOKES's GENERAL PRACTICE of PHYSIC.

Containing several recent

IMPROVEMENTS and DISCOVERIES

IN

M E D I C I N E.

*Multum egerunt qui ante nos fuerunt, sed non peregerunt: Multum
adhuc restat operæ, multumque restabit; neque ulli nato post mille
saecula præcidetur occasio aliquid adhuc adjiciendi.*

SENECA.

(To be had together with the said WORK, or separately)

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A P P E N D I X, &c.

Of OBSTRUCTIONS.

(To precede the Article of FEVERS, Vol. I. p. 61.)



OBSTRUCTIONS chiefly take Place in the Vessels, and very seldom or never in the larger Receptacles.

This may arise from three Causes :
1. Either the Liquid which should pass, is grown more viscid, while the Capacity of the Canal remains the same ; or, 2. The Canal is grown narrower, whilst the Liquid remains as it was ; or,

3. The Straitness of the Canal, and the Viscidity of the Liquid, are combined together.

The Particles of all Fluids cohere with a certain Degree of Force. Now, in order that the Fluids may pass through the smallest Extremities of the Vessels, it is requisite that they pass single, and freed from their Cohesion with the rest ; the Powers therefore that carry the Humours through the Vessels, must be able to overcome this Cohesion. Should then the Cohesion of the elementary Particles be so increased, as not to suffer them to be divided from each other, by the Action of the Heart and Vessels, several of them will remain conglomerated, which ought to have passed singly through the Extremities of the Vessels, and so form an *Obstruction*.

All *Tumours* must arise, either from the Fluids distending the Vessels beyond their natural Bulk, or from their being extravasated, or from the Vessels being concreted with their insipidated Liquids. When the Arteries and Veins, which are charged with red Blood, are so distended with the Quantity they contain, as to compress the smaller Vessels which lie near them, they may do much Mischief. The Effects of this Kind of *Tumour* are especially seen in the Damage it does to the Action of the Brain; for the *Cranium* being always entirely full, and no red Blood being any where to be found but in the *pia Mater*, and the large red Arteries dispersed through the medullary Substance of the Brain, and surrounding the *Medulla oblongata*, the cortical Substance naturally containing none; it follows, that when these red Blood-Vessels are distended, as the hard boney Part of the *Cranium* cannot give Way, the other Vessels of the cortical Substance, and the *Medulla*, must be compressed; by which Means all the Functions of the Brain will be disordered; only the *Cerebellum* will, in this Case, be less affected.

Tumours attended with Pain are called *Pblegmous*; if without Pain, and hard, *Schirruses*; if without Pain, and soft, they are then properly called *Oedamata*; which are applicable to *Tumours* arising in the *Membrana cellulosa* only. The Matter of them is generally Water, as in the anasarcaous Dropsy; or some more viscid pituitous Liquid, as in the *Leucopblematia*. Now the *Membrana cellulosa*, which is the true Seat of these *Tumours*, surrounds all the Vessels, and the *Tumours* are consequently capable of lessening the Areas of the Sections of the Vessels, and frequently of producing very surprising Diseases, entirely owing to this single Cause.

Varices happen more particularly to Women with Child, and that especially in the Legs; because, when the *Uterus* is distended, and presses upon the iliac Veins, it prevents the Veins of the Thighs and Legs from discharging the Blood they contain, so expeditiously as they ought.

A *Callus* in the membranous Part increased in Bulk, is attended with Hardness and Insensibility, arising from the Vessels being concreted together, and chiefly by an external Compression. It's proximate Cause is the Compression of the Vessels, the Expression of the Liquids they contain, and the Concretion of their Sides.

The proximate Cause of all Obstructions is only one, which is always simple and the same; i. e. the greater Bulk of the Matter

Matter that is to be transmitted, above the Capacity of the Canal that is to transmitt.

There are two Causes that distend the Arteries; the Force of the Heart propelling the Blood, and the Quantity of the Blood already contained in the Arteries: If the Force of the Heart be lessened, the whole Circulation proceeds slowly; if the Quantity of the distending Liquid be diminished, the Fault lies in the Inanition. But the Capacity of all the Vessels depends upon two opposite Causes; the Force and Quantity of the Liquid which is moved in the Vessel, and the contractile Power of it's Sides, which resists the distending Causes. As soon, therefore, as the distending Causes are lessened, the contractile Powers will produce the same Effect; or, which is the same thing, the Vessels will be rendered narrower. When the Particles of our Fluids lose their spherical Figure, they must of Consequence lose the Possibility of an uniform Transition through the Vessels: For since by the Motion of the Heart and Arteries, every Particle of the Blood has a different Motion and Situation every Moment, it was requisite to make this Motion uniform, that they should be of such a Figure as might enable them to pass through the Vessels in any Situation; which is the Case of a spherical Figure only.

The Density of the Particles of the Blood is always proportional to the Power of the Heart and Arteries. The Shape of the elementary Particles of our Fluids, so far as we can discern, by the Help of Microscopes, is spherical; and this is obvious, if we consider that the Blood is thrown, by the great Force of the Heart, into a conical Vessel that is reciprocally dilated and contracted, and incurvated as soon as it comes from the Heart: It is plain, therefore, that no Particle of Blood can keep the same Direction for two Moments together; and consequently, that the Particles must be continually striking against each other: So that if any angular Point should stick out in any elementary Particle, that Point must sustain the Rotation of all the rest; and therefore will soon either be beat off, or smoothed down. Add to this, that the Extremities of the Arteries, if cut transversely, have a circular Section, and so may give their Figure to such Particles as are of a flexible Nature.

The stronger a Person is, the greater is the Danger of Concretion, if his Blood be at rest in the Vessels: And therefore those Faintings, which weakly Girls are so subject to fall into upon every slight Occasion, are seldom so dangerous, as their Blood is in a too dissolved State, and scarce ever, or, at least,

very slowly, concretes, though it remain unmoved. The Serum of Blood will not turn to Ice, till exposed to the twenty-eighth Degree of *Fahrenbeit's* Thermometer; so that it requires a greater Degree of Cold than Water; probably because it is impregnated with Salts.

If Blood be taken away on the first Day of the Small-pox, it looks well to the Eye; if on the third and fourth, it will be covered with an inflammatory Crust, because the most liquid Parts being carried off by the Fever, and the thicker Parts more closely compacted, the Particles of Blood begin to cohere more firmly together: For whilst there is a large Quantity of thin Liquid interposed between the thicker Parts, the Pressure of the Vessels will not change their Figures; but when this is carried off, the thicker Parts of the Blood becoming contiguous, will be forcibly compressed by the Action of the Vessels, loose their spherical Figure, touch each other in many Points, and run into Concretions: For when the Vessels are very strong, so as to compress their Fluids with great Force, the finest Part will be carried off, and the thicker Parts united by this Compression.

All *Acids* do not *coagulate* the Blood: The *acidulous Wines*, *Juices of ripe acid Fruits*, *Vinegar*, *Butter-Milk*, &c. rather dissolve it; but the *fossile Acids* prepared from *Sea-salt*, *Nitre*, &c. coagulate it. *Alum*, and the various Sorts of *Vitriol*, produce the strongest Coagulations.

Well rectified Spirit of Wine, applied to the Mouths of the bleeding Wounds of divided Vessels, puts a Stop to the most violent *Hæmorrhages* by coagulating the Blood. The Serum of the Blood itself will presently become hard by pouring rectified Spirit of Wine upon it. How dangerous, therefore, must be the frequent Use of spirituous Liquors.

No Obstructions can possibly be formed in Canals, through which, during the Course of Life, the Liquids are carried by a perpetual Motion, unless the Motion be from a broader Orifice to a narrower. That Obstructions may arise in conical Vessels, through which the Liquids are moved in a Direction leading from the Basis to the Apex, is certain; for their Particles arrive at a narrower Section of the Cone every Moment; and that which easily passed at the Basis may easily stick in the Extremities of this converging Canal, and then the Liquid behind will continually press the unpassable Mass into a still narrower Chanel, and so increase the Obstruction: But in the Veins, where the Direction of the Motion tends from the Apex of a conical Canal, to it's Basis, an Obstruction seems not possible,

sible, unless by the external Compression of the Vessel ; for whatever had passed the narrow Orifice of it's Vertex, will easily pass the other Sections of the Canal, which are continually growing larger : And though the Particles of the Fluid be supposed to unite into still larger Particles, yet, as these are not supported by the diverging Sides of the Veins, they will easily be carried on by the Impetus of the subsequent Liquid.

In a Peripneumony, it is a bad Symptom if the Blood drawn from a Vein be too dilute, and scarce disposed to coagulate ; because it shews, that the thinner Parts only pass through the Lungs, while the thick are accumulated.

It often happens, that acute inflammatory Diseases of the Head shall leave behind them an incurable Deafness or Blindness, during Life ; the Reason of which is most probably this, that when the greater Vessels were obstructed by the Inflammation, the lesser, derived from them, being compressed and collapsed, were, by this Means, grown together.

When in an Apoplexy the Brain ceases to perform it's Functions, it is seldom cured ; some Defect or other of the Functions always remaining, which, for the most Part, proves incurable.

When the Stomach is distended with a large Quantity of Meat and Drink, and presses the descending Trunk of the *Aorta*, the turgid Face, the red Eyes, the increased Pulsations, and the quicker Respiration, all shew the Quantity of Blood to be increased in the upper Parts, and that it flows with greater Celerity through the Vessels : Hence it is that we meet with so many Instances of Persons who have died of an Apoplexy immediately after a full Meal.

If a confirmed Schirrus, or a malignant Cancer, that will not admit of Extirpation, be the Cause of an Obstruction, he must be a bold Man that in such a Case will presume to promise a Cure.

The Passions of the Mind are capable of very suddenly and very powerfully increasing the Contractility of the Solids. I have seen a Woman in perfect Health, who, upon a sudden Fright, had a Tumour immediately rise in her Breast, which, though very properly treated, hardened into an irresoluble Schirrus.

Warm Water will soften the harder Parts of the Body ; but when turned to Vapour, will more effectually accomplish this Office. The Joint of the Elbow, grown immoveable from an Induration of the Ligaments, was rendered entirely flexible, in two Months, by being exposed two Hours every Day to the Vapour

Vapour of warm Water. Where this can be conveniently directed to the Part, it is most undoubtedly to be preferred to all other Methods. Warm Water dropping from a higher Situation on the Part affected, has done Wonders in local Diseases; chronical and stubborn Tumours of the Knee have been often cured thereby.

Bleeding often is useful in Obstructions arising from the increased Contraction of the Fibres; for thus emptying the large Vessels, the lesser ones which form their Sides are less compressed, and the Force by which the Liquid is impelled against the obstructed Place is diminished; and in Case the Quantity of Blood taken away be large, so as to endanger Swooning, the Pressure of the vital Liquid from the Basis of the Vessel to the Vertex, being, by this Means, removed, the smaller Vessels will be enabled to contract and repell the Liquid which obstructs them in the larger Vessels.

A Callus, if pared off from the Skin, will grow again, although no vital Liquid flow through it: And this seems to arise from the concreted Extremities of the Vessels being gradually protruded by the vital Liquid; as also because the open Extremities of the Vessels, that are next the Callus, are compressed by it.

Animal Motion increases the Velocity of the Circulation, and renders the solid Parts more firm.

Frictions are of great Use in resolving Obstructions. I have seen an indurated parotid Gland, after many good Applications had failed, resolved by being rubbed with woollen Cloths for an Hour together, twice a Day, after having been exposed to the Vapour of warm Water and Vinegar. The same has been effected in the Glands of the Neck, which were strumous.

Muscular Motion also is of singular Service in this Case; as the venal Blood is accelerated thereby, it occasions the Heart to contract oftener, and more frequently distends and contracts the Vessels alternately in a given Time.

Sea Salt, Sal Gemm, Sal Ammoniac, being much alike in many of their Qualities, have also a similar Power of attenuating. The two former, when given inwardly, mix, indeed, with our Humours, but pass off by Urine, in a great Measure, unchanged; for which Reason, though they pass through most of the Vessels of the Body, yet they undergo no Alteration from their Action. Now, whatever is taken down, and cannot be changed by the Powers of the Body, will constantly excite a greater Motion by acting as a Stimulant. But Sal Ammoniac.

Ammoniac, which is lighter than the other two, and more like the native Salts of the Blood, is more capable of being changed by the Powers of the Body, and of a very penetrating Nature; and is therefore generally preferred before the rest, and justly commended as one of the greatest Deobstruents, both in acute and chronical Diseases.

The Action of these Salts seems to consist in this, that when they are mixed with the Humours, dissolved, and conveyed to the obstructed Places, from a Kind of constant Attrition by the Action of the Vessel against the obstructing Mass, they divide it by their Weight and Figure, and thereby render it passable through the Vessels; at the same Time increasing the Action of the Vessels themselves, by their stimulating Quality.

When the Vessels under the unbroken Skin are ruptured by a Contusion, and the Blood concreted into a Mass, which is still entire, these Salts dissolved in Water, and applied to the Part, will most happily dissolve it.

Those who indulge themselves too much in eating large Quantities of Sea Salt, will have their Blood so dissolved, that it can scarce be retained in the Vessels; hence often will arise very violent Hæmorrhages, partly from the Blood's too great Dissolution, and partly from the too great Acrimony of the Humours eroding the Vessels.

The modern Nitre seems quite different from that of the Ancients; for theirs appears to have been of an alkaline Nature, or, perhaps, it was Sal Ammoniac to which they gave this Name. Modern Nitre is of a Nature strangely ambiguous, between vegetable, animal, and fossile. If free from Sea Salt it remains dry in the Air, dissolves entirely in Water, is the lightest of Salts, a very great Attenuant, and highly useful in Obstructions from an inflammatory Density of the Blood.

Borax is a very wonderful Salt, whose Nature is not well known, and it's History confused, even in the best Writers. It is commended much as a Deobstruent, and used in the most obstinate Diseases, as it acts partly by it's wonderful Stimulus, and partly by it's attenuant saline Power.

All Soaps contain an Oil so intimately mixed with a Salt, as to be capable of being dissolved in Water without Separation: The more subtile the Oil and the Salt are, of so much the more excellent Use is the Soap which is made from them.

Pills of Soot gilt over, to prevent their offending the Taste, have often done great Service in Diseases arising from Viscidity, on Account of their soapy attenuant Nature.

That

That Bile has a dissolving Power, is evident from those Diseases, where, by being hindered from taking it's usual Course, it regurgitates backward into the Blood, in which Case it turns it all to a Water; and for this Reason it is, that obstinate Jaundices are almost constantly followed by a Dropfy. If Bile, inspissated as an Extract, be rubbed on the swollen Bellies of Children, it will dissolve the Concretions formed in their Intestines, and carry them off by Stool.

It is sufficient, if a Physician knows the Effect of Quicksilver, when applied to the Body, though he be not acquainted with it's particular *Modus operandi*: The Virtue of other Remedies is no less obscure; who has ever explained the Manner by which Scammony carries off the Blood by Stool, after it is converted into a putrid Water?

Who ever has thoroughly understood the wonderful Properties of Antimony in it's several Preparations?

Bleeding will succeed better in a Pleurisy, if the Side affected be gently rubbed at the same Time the Blood is issuing from the Vein; or if the Patient move the affected Part, by frequently drawing in his Breath as hard as he can, or by Coughing.

Obstructions in inflammatory Diseases are more easily removed in Men of lax Habits, than in strong Men who have been accustomed to hard Labour.

Of an EXCESS of the circulatory Motion of the BLOOD.

THE Blood of Persons in Health is much disposed to Concretions; and this may be increased by the Increase of Heat: Blood thus concreted is not easily solvable.

Whatever causes the venal Blood to move more swiftly towards the Heart, increases the Motion of the Heart: Hence it appears how a very high Fever may be raised by too violent muscular Motion, or by violent Frictions.

An increased Motion of the Blood arises from the more frequent and violent Contractions of the Heart. The Dilatation of the Arteries must be increased in a Proportion compounded of the increased Strength and Frequency of those Contractions.

The Arteries, when they are distended, are in a violent State; and hence their Sides endeavour to approach nearer to their Axis, by their Elasticity and circular Action, and so re-

pres

press the distending Blood: For, unless the Arteries, by being contracted through their own Spring, were to expel the Blood which distends them, the heart would not be able, the next systole, to throw the Blood contained in it's Cavities, into the Arteries already distended; consequently the Blood would by degrees be accumulated within it's Cavities, and the Circulation stopped. The stronger therefore the Motion of the Heart is, which distends the Arteries, the greater will be the Power of that Force by which the Arteries endeavour to contract their Cavities; and the oftener the heart is contracted in the same Space of Time, the more frequently will the contracted Arteries re-act upon the Blood that distends them.

Heat arises from the Attrition of the Parts of the Blood with each other, and with the Sides of the Vessels. As soon as the Blood is at rest, all Heat ceases; which revives again upon it's Motion. This made HIPPOCRATES assert, that *the Blood is not hot by Nature, but grows hot.*

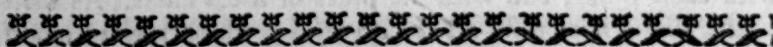
The Urine, which is the true Lixivium of the Blood, grows more acrid and foetid, as the Circulation becomes more violent: The Motion of the Blood being increased, it's Salts become more acrid and volatile, and it's Oils thinner and less mild: These again will form a fresh Stimulus to increase the Circulation, from the Increase whereof they deduced their Origin. And thus the Effect of a Disease shall increase the Disease itself.

Health seems, in a great Measure, to consist in every Vessel's containing it's own due Portion of Liquor.

The Quickness of the Pulse shews that the Heart is contracted more frequently than it should be, in the same Space of Time; it's hardness indicates the Fulness of the Arteries; that the Blood is very compact and dense; and that with Difficulty it gains a Passage through the minute Vessels, through it's inflammatory Viscidity.

All the Blood thrown out of the right Ventricle of the Heart, ought to pass through the Lungs before it can return into the left: But as the right Ventricle would not suffice to propel all the Blood through the narrow Passages of the pulmonary Artery, by it's own muscular Force alone; there is farther required the concurring Action of Respiration to dilate the Lungs, and thereby open a free Passage to the Blood that is thrown from the Heart. In Proportion, therefore, as the right Ventricle of the Heart, in a given

Time, contracts oftener and stronger, so much the more frequent and strong the Inspiration is required to be. Thus we see, that whenever the Motion of the Blood is increased by Running, or any other violent Exercise, the Respiration increases in Proportion, and is performed with greater Difficulty. And thus the Respiration is greater, merely from an Increase of the Velocity of the Blood which passes through the Lungs. But when, besides this, through the greater Motion, the Blood begins to assume an inflammatory Thickness, the Respiration will then be much quicker, and more difficult ; for this ill Quality in the Blood, of it's not being able to circulate, first shews itself in the Lungs ; and for this Reason, in acute Diseases of the inflammatory Kind, a short and difficult Respiration is reckoned a bad Symptom.



Of a Defect of the Circulation, and of a Plethora.

A Diminished Circulation is always attended with a Fullness of the Veins. For if the Viscera, whose Office it is to change the Aliment into Chyle, be firm and strong, this large Quantity of Chyle is converted into good Blood ; and as the Veins are of a lax Nature, they will easily yield to the distending Liquid, and admit this superfluous Quantity, unless emptied by Motion and Exercise ; so that by Plethora is not to be understood every Increase of the Humours, but only an over Increase of the Quantity of Blood.

A delicate Way of Living, Intemperance, Laziness, and supping overmuch, may give Rise to a Plethora ; which may likewise be the Effect of the Suppression of habitual Discharges, whether natural or artificial, and even of some Diseases which Nature has made the Means of restoring the necessary Equilibrium between the Fluids and their Vessels.

When hard Drinkers pour down such vast Quantities of Liquor, they would be suffocated, if their Veins were not capable of giving Way, and receiving the superfluous Part of it ; and therefore it is that those People have their Veins so much inflated. If then much Chyle and Blood be formed in the several Viscera set apart for this Purpose, and the Laxity of the Veins, at the same Time, be proportionally greater, the Quantity of Blood must necessarily be accumulated.

Men

Men used to frequent Bleeding suffer the same Inconveniences, at their accustomed Times of letting Blood, as Women do from the Retention of the Catamænia, till, at length, they become quite as lax as women.

Hard-working People are seldom known to be plethoric, though they eat voraciously; because Labour carries off that which would otherwise be detained in a State of inactive Idleness, and gives such a Firmness to the Solids, as not easily to yield to the filling Liquors.

Rarefaction is alone capable of producing a Plethora; for if the Blood be rendered twice as rare as it was, it is the same thing with respect to the Vessels, as if there were twice the Quantity of Blood contained in them.

Without discussing the Point, whether a Plethora should be admitted among the Number of Diseases, or considered as a Cause only, it must however be allowed capable of exciting the greatest Disorders, such as Vertigos, Convulsions, Apoplexies, obstinate Ophthalmias, Fevers, internal Hemorrhages, suffocating Cathars; and, in a Word, Numbers of other Maladies, which, though apparently of a very different Character, yield not to the same Treatment and Remedies which a Plethora requires.

When an evident Redundancy of Blood has not, as yet, produced any dangerous Stagnations, the proper Means to oppose it's Progress, are an abstemious Diet and bodily Exercise; not neglecting to restore, as far as possible, any habitual Evacuations which may have been suppressed. It has been generally held, that in other Cases, Bleeding should indispensably be had Recourse to; to persist too far in it, may, however, be very dangerous, as it is but too notorious that a frequent Use of it is apt to weaken the elastic Force of the Vessels, as observed above. But Exercise should never be prescribed till the Vessels have been first emptied by Bleeding, lest, by being too much distended, they should be liable to break. Other accessory Remedies may be serviceable according to particular Circumstances, especially Purgatives, when the Body has been duly prepared by Diet and Bleeding.

Of

Of PAIN.

THAT the Teeth, Ears, Stomach, Intestines, Kidneys, &c. are liable to most acute Pains; that the Liver, Lungs, Spleen, and other Viscera, are the Seat of less violent Pains; and that those which affect the fleshy and membranous Parts are a known Symptom of the Rheumatism, Gout, Pox, Scurvy, Cachexy, &c. falls under almost every one's Observation. Moreover, it is customary to distinguish Pains by the different Sensations which they excite, as that of Weight, Pulsation, Pungency, Knawing, Heat, Itching, &c. The *heavy* or *weighty* Pain frequently attacks the Head and the Viscera of the lower Belly, but mostly the Kidneys: The Head is also the Seat of *pulsative* Pains, but they more particularly accompany the Formation of Pus; and the Shootings felt under this Circumstance are a more manifest Indication of it than any other Symptom. *Pungent* Pains torment the membranous Parts, and are sharper the more the Membranes are stretched; of which the Pleurify, Sciatica, Cholio, Spina ventosa, &c. furnish Examples. *Knawing* Pains, as Ulcerations, with which the Lungs, Kidneys, Guts and Womb, are the oftener affected. The *burning* Pain is most remarkable in the Erysipelas, whence it got the Name of *St. Antony's Fire*. The *itching* Pain belongs principally to Diseases of the Skin. Besides these there are *dull* Pains, which occupy chiefly the precordial Parts, otherwise called *Anxieties*. Nothing is more common than *numby* and *crampy* Pains, with those nocturnal Inquietudes which are felt principally in the lower Extremities; and their disagreeable *tickling* Sensation about the End of the Sternum, and in the Bottoms of the Feet; to say nothing of those which arise from Pressure, Contusion, Distension, Wounds, Burns, or Cold; all which Varieties depend, as may be easily understood, both from the Structure of the Part, and the Nature of the irritating Cause.

Pain, wherefover seated, is rarely essential, or independant of all other Conditions; being, for the most Part, a Symptom of some acute or chronical Disease. In the former, if the Pains be continual, either in the Breast, or the lower

lower Belly, they portend Suffocation, Inflammation, Suppuration, or Gangrene: It is otherwise with those which occupy the Externals or Extremities of these Cavities; for they may be, in the Course of the Disease, the Forerunners of some critical Change.

Pains which are neither continual, nor fixed, depend upon a simple Affection of the Nerves, called a *Spasm*; which acts it's Part sometimes in perfect Health, as well as in chronical Diseases.

It is worthy of Observation, that the most frequent Pains which accompany habitual Disorders, depend chiefly on those four principal Diseases, the *Rheumatism*, *Gout*, *Scurvy*, and *Pox*. Yet are not these the sole Source of wandering and irregular Pains; for such may be excited by the Passions of the Mind, convulsive Affections, obstructed Perspiration, &c. Besides, in some chronical Diseases, Pains are owing to vascular or glandular Obstructions, Tumors, and other Disconcertions of the Solids.

There are certain Pains on whose Nature it is extremely difficult to form a right Judgment: The Seat of some internal ones, and their Causes, are often hard to guess at: Nevertheless, there are no great Consequences to be apprehended in Fevers, of Pains attacking the Head, Back, and extreme Parts, as they seldom fail to disappear when the Fever is at End; and they are often of a favourable Presage, especially if they coincide with the Time of Concoction: For Example, those of the Temples, Neck, and Eyes, denote an approaching critical Hemorrhage. Wandering Pains through all the internal Parts, sometimes precede Evacuations or salutary Eruptions. Those of the Loins are well known to precede the menstrual Flux, Hemorrhoids, and a copious Discharge of Urine. Violent and continual Pains of the Head, sometimes terminate in a Lethargy and a Delirium.

Intermittent Pains are ever less dangerous than those which are *continual*; as are likewise such as *shift their Place*, than those which are *fixed*; excepting, however, those which externally affect the Viscera, which is sometimes the Case in the bastard Pleurisy, Gout, Rheumatism, &c.

It should also be remarked, that the *Seat of the Pain* is not always that of the Disease: It is well known, that of the Head often depends on the bad State of the Stomach; that Obstructions of the lower Belly frequently excite Pains in the Neck and Breast; that an Irritation of the Bladder is felt

felt at the Extremity of the Penis ; and that some Affections of the Intestines, remote from the Anus, often produce a Tenesmus.

The Method of treating Pains is sometimes attended with great Difficulty, as to discerning and attacking the Cause of them ; but Practitioners are for the most Part a little Remiss in this Inquiry, contenting themselves with palliating or appeasing them, till such Time as Nature performs the rest. *Emollients, Moisteners, Relaxants, and Narcotics*, are employed in producing this Effect ; the latter, however, are improper in Suffocations and Inflammations, and dangerous where a Gangrene is apprehended : Nor must they be administered in the Gout and Rheumatism, even externally. The three others fall not under the like Exceptions, being extremely beneficial in all Sorts of Pains, given internally, or outwardly applied. The Efficacy of the *Peruvian Bark* is very conspicuous in regularly intermitting Pains ; but herein the Discretion of the Physician must be carefully exercised. *Revolutions*, whose Business is to attract the Blood, Humours, and peccant Matter, to some other Part, are likewise much in Use, and attended with the happiest Success : They are performed by Evacuation or Irritation ; *taking away Blood*, applying *Leaches*, *Cupping-glasses*, with or without *Scarifications*, *Blisters*, and *Caustics*, are the Means chiefly employed. The *Moxa*, a Remedy which has been highly extolled, though of late so much neglected, may be admitted to great Advantage into this Class. The like Benefit may be obtained from the bare *Immersion of the Feet* into warm Water, or from *Frictions of the Legs*. It is sometimes observable, that Disorders of the Head, which proved obstinate to the most powerful Remedies, have yielded to these slight Artifices. After all, it is expedient to trace, as far as possible, the sometimes *deeply hidden Source of Pains* ; to examine if they do not depend upon some local Vice, which requires other Helps ; if they do not participate of the above-named *principal Diseases* ; and lastly, if they do not demand the Assistance of Surgery, as arising from *Luxations, Fractures, Contusions, Sprains, Hernias, &c.*

Summary of the BOERHAAVEAN DOCTRINE and TREATMENT of FEVERS in general.

(To come in Vol. I. pag. 71. immediately before the Article of INTERMITTENT FEVERS and AGUES.)

THE greatest Caution is necessary in searching out the very hidden Nature of a Fever. In this Case we are not to assume any thing from Hypotheses, previously contrived, however ingenious they may seem; but we are only to consider the Appearances of the Fever present in the Body, and weigh each of them apart, that by afterwards comparing them together, we may thence, by just Reasoning, be led to understand the proximate Cause of the Fever. When an hypothetical Method is taken to discover the Nature of Diseases, the curative Part may be founded on a false Hypotheses.

The only three observed Symptoms common to all Fevers, are, a *Shivering*, a *quick Pulse*, and *Heat*.

A Shivering is meant by Physicians to signify that Tremor or Shaking of the whole Body, which arises from a Sensation of Cold; as when a Person, being warm, suddenly exposes himself to the cold Air: And this Symptom attends every Fever which arises from internal Causes.

To denominate a Fever *acute*, the Rule is, that it's swift Advance be attended with Danger; but the *slow* Fever is so called from it's small Advance, whether life be in Danger, or not. Nor is the Quartan an Exception, since it hardly ever proves fatal, unless by some error in the Patient or Physician, and ought therefore to be ranked among Diseases of a long Continuance, as well as a hectic Fever, from whence very few escape. CELSUS, therefore, very properly defines Diseases of long Continuance to be those *in which neither Health nor Death is at hand*.

As *epidemical* Fevers arise from some common Cause, they have usually almost the same Course and Symptoms, and require the same Method of Cure: But *particular* Fevers, arising from very different and often opposite Causes, require to be treated in a different Manner in different People. Even

HIPPOCRATES

HIPPOCRATES has taken Notice of this Distinction in Fevers: But we much more frequently meet with acute Fevers epidemical, and slow ones more rarely, among which last Quartans are the chief.

As in all Fevers the Velocity of the Pulse is increased, it follows, that the Heart contracts, in Proportion, more frequently; and thence again, that the Causes from whence the Contraction of the Heart results, are increased. But in what Manner these Causes act, which excite the Heart to a quicker Contraction; and after what Manner, as in an intermitting Tertian, renewed every other Day, when it afforded no Appearances at all on the intermediate Day; these are hitherto concealed from all of us: For all that we know of the Nature of a Fever, we discover only by it's inseparable Effects and Appearances; nor can human Understanding proceed farther in the Investigation.

Since the Dilatation of the Artery is synchronous with the Contraction of the Heart, the Pulse cannot be accelerated, unless the Contraction of the Heart becomes quicker at the same Time, as that is the only and intire Cause of the Dilatation of the Arteries. For all that has been said by some Authors, about Ebullition, Fermentation, or Effervescence of the Blood, &c. in the Cavities of the Heart, has been proved to be false, and contrary to Experiment; and it appears most evident, that the Cause of propelling the Blood from the Heart into the Arteries, does not reside in the Blood itself, but in the Heart, which immediately receives the Blood. A Fever may therefore deservedly be called a Disease in the Heart; since in every Fever the Action of that muscular Organ is changed, and that by being brought into more frequent and quicker Contractions.

It appears from Anatomy and Phisiology, that the muscular Motion of the Heart renders it's own muscular Fibres paralytic; and that by this Means the whole Heart is so disposed, that a new Contraction must follow the Moment after: For the Nerves sent to the Heart are so situated, that they must be compressed by the Dilatation of the largest Arteries, distended by the Blood expelled from the Heart, the Aorta, and the pulmonary Artery; during the Dilatation of which the venous Sinuses and Auricles of the Heart are likewise distended; and therefore the Influx of the Spirits through the Nerves into the muscular Fibres of the Heart, is thus impeded, while at the same time all the Blood is pressed

pressed through the Vessels dispersed throughout the Substance of the Heart, which therefore looks pale during the Systole. Thus are the two Causes absolutely required to muscular Motion, intercepted or removed ; namely, the Influx of the Spirits, and of the arterial Blood. But in that Moment of Time, which the Heart, as it were paralytic, has it's Cavities filled by the influent venal Blood, the Aorta is contracted, and, with great Force, urges the Blood through the Orifices of the coronary Arteries, throughout the whole Substance of the Heart, and, just now, the Nerves are no longer compressed, as the Arteries are then contracted and the Sinuses and Auricles emptied ; whence they freely transmit the Spirits sent from the Cerebellum, through the cardiac Nerves, to the Heart : And therefore the two Causes of muscular Motion will be renewed, and thence the Contraction of the Heart will be instantly repeated.

A Quartan is usually accompanied, in the Beginning of a Fit, with a violent and long-continued Coldness ; but in the Beginning of a Fever of one Day's Continuance, there is often only a very slight Sense of Cold perceived.

There very frequently is so great a Weakness observed in the Pulse, during the cold Fit of a Fever, that the Stroke of the Artery is hardly perceptible to the Touch ; and this more especially in old Persons afflicted with the Quartan Fever in Winter ; and then also the Quickness of the Pulse is so very great, that it seems rather to tremble, than to be made up of a distinct Dilatation and Contraction. But where there is so great a Celerity of the Pulse, as to be ten times quicker than what is natural, no one can distinguish it's Numbers ; there is only a surprizing undulatory Motion perceived by the Finger. If the Hand be applied to the Breast, the Heart seems to tremble, instead of beating powerfully against the Ribs, as is usual in Health ; though, in this Case, the Artery will sometimes dilate more powerfully, and then again appear extremely weak and quick : And sometimes a true Intermission of the Pulse may be discerned ; and then the Patient is apt to complain that his Eyes are dim, or that he cannot hear, or scarcely feel. Here the same Thing happens as before Death in the Dissection of living Animals. We there see the Heart, being no longer able to expel it's contained Blood, tremble, and evacuate only a Part, being now unable to dilate the Arteries : In the mean Time the Auricles and venous Sinuses are greatly distended, and, after a few Moments, become suddenly contracted, forcibly projecting their Blood into the Ventricles of the Heart, which, being then irritated by the Quantity and Impetus, is very powerfully contracted. Then again it trembles and languishes

till it be excited by the same Cause, or till all Motion ceases by the Death of the Animal.

The lively Colour observed in a healthy Person arises from the Vessels filled with red Blood ; so that when the Force of the Heart, from any Cause, begins to be weakened, not being able to propel the Blood to the Extremities of the Body, and the Arteries, at that Time, contracting by their own Elasticity, especially towards their Extremities, which are the least urged by the Force of the Heart, the Blood is by that Means repelled into the smaller Branches : Therefore the subcutaneous Arteries, which are some of the smallest in the Body, will be, in a great Measure, emptied ; whence a Paleness must arise.

The various Parts of the Body are the more flexible, in Proportion to the greater Abundance of Humours, with respect to the solid Parts : But in the Beginning of a Fever, the Force of the Heart being weakened, cannot fill the smallest Vessels in the extreme Parts of the Body ; and therefore these being contracted, and repelling back their contained Juices into the larger Vessels, this will be one Cause of the Rigour or Stiffness in the Beginning of Fevers. Besides this, the Cold, which contracts every Thing, will increase the Cohesion of the solid Parts, and consequently augment their Stiffness. Since therefore these two Causes concur, it is no Wonder that a great Stiffness arises in the Time of a cold Fit of a Fever.

In intermitting Fevers, if the Patient is not very weak, or advanced in Years, the hot Fit is so much the more intense, as the preceding cold Fit was more violent.

It is one of the best Signs, if the febrile Heat be equally diffused throughout the whole Body, even to the Extremities ; for it denotes that the Vessels are pervious, and that the Blood has a free Circulation ; but in the worst Fevers, which are then commonly fatal, there sometimes happens an intense Heat, perceived about the vital Organs, while, at the same Time, the extreme Parts of the Body are cold ; which denotes the Circulation to be deficient in those Parts ; and that the impervious Blood begins to stagnate, or accumulate about the vital Viscera ; while, in the mean Time, the Heart, being more swiftly contracted, propels the Blood with a great Velocity through the Vessels, which are yet pervious in the Parts next adjacent.

When in ardent Fevers, the Blood, by an inflammatory Tenacity, stagnates in the smallest Arteries, these, being diffended, compreſs the adjacent secretory and excretory small Ducts ; and hence the whole external Skin, Tongue, inside of the Mouth, Fauces, &c. are invaded with a burning Heat ; and when the Patient recovers from these most dangerous Diseases,

eases, almost the first Symptom of Nature's overcoming the Disease, is a Return of Moisture into all these Parts.

It is a general Indication in every Fever, so to moderate the Force of it, that it may not, by destroying the Solids, and thickening the Fluids, produce Inflammations, Suppurations, Gangrenes, &c. nor yet to let it subside so low as to be incapable of attenuating, changing, moving, and expelling the morbid Matter: Nor is it possible too much to inculcate this general Rule, as it is of the greatest Moment. Many have entertained too ill an Opinion of the Name of a *Fever*, and believe that it ought ever to be engaged with the most forcible Methods: when, at the same Time, it appears from the Writings of the Ancients, and the Observations of the best modern Physicians, that a Fever often most happily cures itself, provided it be kept under a due Regulation, and moderate Degree.

A Fever may terminate in Health two Ways: as when the morbid Matter is so changed by the Force of the Fever itself, that being assimilated with the healthy Humours, it may be freely carried through the Vessels, without any Disturbance to the equable Circulation; or else, the same morbid Matter being subdued, so as to have a pervious Passage, is then expelled out of the Body, and this either by an insensible or a sensible Evacuation.

Sweats, Vomiting, and a Diarrhæa, are Evacuations only serviceable in as far as they expel the febrile Matter, either wholly or in Part from the Body, whereby the Disease may be entirely removed, or at least alleviated. The principal Sign whereby the Usefulness of these Evacuations is known, is derived from their Effects. Now there is great Reason to hope that a Vomiting, Sweat, or Diarrhæa, will prove useful, if they happen after the Coction or Height of the Disease; for those which come on in the Increase of the Disease, are rather symptomatical than critical Evacuations, and often do more Hurt than Service.

Old People bear Abstinence the most easily: this is indeed true while they are in Health, because they are nourished neither for Increase nor Strength, but only to support their Being; and in these the Cavities of a great Number of Vessels are either entirely closed up, or very much lessened; whence a less Quantity of Humours is required to flow through them: Add to this, that all the Vessels being now more rigid, yield less to the impelled Liquids; and many of the Humours being expelled from the Body in Fevers, will occasion Dryness from his Diminution of the Quantity of Liquids. Upon these Accounts

Disorders happening in old Age will be increased by a Fever, if the Patient is not relieved by a moist and softening Diet. And here more especially the Food must be given often, and in small Quantities, because the weak vital Strength of the Aged would be destroyed by greater Quantities ; and they require but small Supplies, provided they are frequently administered : Add to this, that Abstinence or Fasting in great old Age, often brings on a fatal Syncope ; because the Quantity of Humours being lessened, the rigid Vessels do not contract themselves in Proportion ; so there will be no Action of the Vessels upon their contained Fluids, whence ensues Stagnations and Death ; and thus the Reason is evident, why Abstinence is so prejudicial to old Persons in Fevers.

In consumptive Persons, whose Lungs waste away by a slow Suppuration, there is a continual slight Fever, which often increases every Day at the Time when fresh Chyle is plentifully supplied, and driven, together with the Blood, through the Lungs ; some Practitioners, therefore, believing this Fever to be of the intermitting Kind, have made Trials of the Virtues of the Bark, but always with the most fatal Success ; for the purulent Cause remaining, the febrile Motion must necessarily be suppressed, whereby the collected Matter ought to have been expelled ; whence the greatest Anxieties, and sometimes Death itself, have followed from that Practice. The whole Cure of such a Disorder consists in washing out, as it were, and deterging the purulent Matter ; and then in consolidating the Parts thus cleansed from the Matter, as in the Cure of a clean Wound.

The more severe a cold Fit is in the Beginning, so much the more dangerous it is ; for this Coldness denotes a Diminution of the Circulation, and the less the Circulation, the nearer the Disease approaches unto Death, wherein the Circulation wholly ceases : But if, at length, the vital Powers overcome this Coldness, being irritated by the same Cause which produced the Fever, they render the circulatory Motion so violent or swift, and excite so strong a Heat, that the worst Consequences of every Kind may be feared : For the very tender Vessels of the Encephalon and Lungs, cannot bear so great a Force without the greatest Danger ; and the great Heat following after the most intense Cold, may dissipate the most fluid Parts of the Humours, and insipiate the rest ; whence there is the greatest Danger, lest the Humours becoming unfit for obtaining a Passage, should adhere to the narrow Extremities of the Arteries, and so produce Inflammations and Gangrenes of the most pernicious Kind.

A severe

A severe Tremor is bad in Fevers, as it denotes that both the nervous and arterial Fluid is either deficient or unpassable ; and, at the same Time, such a violent Trembling arising much in the Beginning of a Fever, denotes a great Strength of the efficient Cause, capable of exciting so extraordinary a Disturbance in a Body which has, perhaps, been hitherto healthy ; and likewise because a great Trembling indicates a proportionable Obstruction opposing the Circulation of the Humours.

Moreover, Tremblings which arise in the Course of Fevers, unless they precede or accompany critical Evacuations, are often of the worst Import, as generally indicating that the Matter of the Disease inclines to the Head, disturbing there the natural and equable Motion in the very Origin of all the Nerves, the medullary Substance of the Encephalon.

The general Cure of Fevers requires four Things ; a Correction or Expulsion of the acrid irritating Matter ; a Dissolution and Expulsion of the febrile Lentor ; a Mitigation of the Symptoms ; and lastly, the Re-establishment of the Patient in perfect Health.

Those Fevers are termed continual and putrid, wherein the Humours degenerate much from their natural and healthy State ; and, at the same Time, incline to Putrefaction ; and hence the various Degrees of Malignity are observed, according to the greater or less Intensity or Degeneracy of them.

A Dryness of the whole Skin, Nostrils, Mouth, and Tongue, arise from a Dissipation of the moist thin and watery Juices of the Blood, by the febrile Heat ; and partly because the rest of the Blood becoming unpassable, and adhering in the larger Vessels, distends them so as to compress the adjacent smaller Vessels ; and therefore in such Patients the Skin appears rough and dry, as the subcutaneous Vessels, distended with unpassable Blood, compress the very subtile exhaling Vessels, while, at the same Time, there is a Deficiency of the thin serous Parts of the Blood ; the same holds true also in the Eyes, Nose, Mouth, and Tongue. Hence HIPPOCRATES pronounces, that *those who die of an ardent Fever perish with Dryness.*

GALEN observes, that an exquisite ardent Fever retains all the Signs of an exquisite Tertian, and that it differs only in not invading with a Rigor or Shivering, and in not coming to perfect Intermissions : for which Reasons he ranks an ardent Fever, not among the *Synochi*, or continent, but among the continual remitting Fevers. But in the Fevers which he calls *tertianary* (τεταρτοφυες) or *semitertianary*, which he likewise refers to an ardent Fever, the Exacerbations happen always on unequal Days.

Days. It should indeed seem probable, that the ardent Fever has something of the Nature of an Intermittent; since frequently when such Fevers are extended to a great Length, they, at last, change into Intermittents; and even, sometimes, when intermitting Fevers spread epidemically, and appear early in the Summer Months, they often pass under this Appearance.

The Blood being deprived of it's thinnest Parts in ardent Fevers, tends to Concretion, and begins to stagnate in the Arteries; whence it is accumulated in those Vessels, and distends them; while, in the mean Time, they press out only the more fluid Parts of the Blood into the Veins; whence, though a Vein be opened frequently in such Diseases, it is manifest only that Part of the Blood is removed, which is best disposed to flow through the Vessels; whereas an Hemorrhage from the Nose, discharging the Blood from the Arteries themselves, turns off the Impetus and Quantity of Blood, more especially from the Encephalon, whose Functions, in these Diseases, are usually so much disturbed.

The best Hemorrhage is that which happens on a critical Day; viz. the 4th, 7th, 11th, 14th, 17th, 21st, &c. called legitimate critical Days; but those happening on some incidental critical Day, as the 3d, 5th, 6th, or 9th, are less salutary; if they fall out on other Days, they are altogether to be suspected; and the same will hold good of the other critical Evacuations.

A Redness of the Face, beset with Drops of Sweat, is a very bad Sign in an ardent Fever; because it denotes an inflammatory Spissitude of the Blood opposing it's Passage through the Vessels, and that it is either forced into other improper Vessels, or else adheres about the smallest Extremities of the sanguiferous Arteries, and that a very small Portion of it can, as yet, be expressed; as also, that Death being now at Hand, the Extremities of the small exhaling Vessels in the Skin are so relaxed, as to transmit a thick and gross Sweat, according to a just Observation of HIPPOCRATES—*The general Cause or Reason of Sweats ought to be known; some are from a Relaxation of the Parts of the Body, and others from the Violence of Inflammation.*

A Swelling under the Ear, not coming to Suppuration, is destructive: When Parotids arise in an ardent Fever, it is a Sign that the febrile Matter is critically deposited about the Glands there seated; and as the Blood in this Fever is deprived of it's most fluid Parts, and, at the same Time, has acquired a greater Acrimony, therefore a mild Resolution of these

these Parotids cannot be expected, since, to effect that, a mild State of the Humours is necessary, a sedate Motion of them, and that the obstructing Matter be not over compact. It is therefore a Suppuration only that can take Place here, which, if not procured, a worse Manner of terminating the Inflammation must be expected. Sometimes the swelled Parotids suddenly disappear, from the morbific Matter returning again into the Blood ; whence the Worst returns, and even Death itself may be expected in an ardent Fever.

HIPPOCRATES justly admonishes to consider carefully whether the Fever is abated or increased. For if it suddenly increases when the Parotids disappear, we know that the febrile Matter mixing again with the Blood, produces more Disturbances ; and that therefore a bad Termination of the Disease is to be feared. But if no such Increase of the Fever happens, there is Reason to hope that the Matter will, in a little Time, escape by other Passages, or be deposited upon some other Part. Neither yet must we believe Health to be always an infallible Consequence of Parotids coming to Suppuration in ardent Fevers : For Crises made by Abscesses or Depositions, are of all the unsafest.

A Constipation of the Bowels in ardent Fevers is never of Service ; for since these Fevers are kindled up by the Bile, rendered more acrid or corrupt ; and as even a sound Bile is soon corrupted by an immoderate Degree of Heat, it must be evidently more useful for these foul Humours to be discharged from the first Passages ; otherwise, by the Access of Air, with the Heat and Stagnation, they may degenerate into the most malignant Putrefaction in a very short Time. Hence it is that Clysters are so serviceable in ardent Fevers, not only as they dilate, relax, and cool, but also as they discharge out every thing putrid lodged in the Intestines. It is therefore no bad Sign for the Belly to be looser than ordinary in these Fevers.

An ardent Fever differs from a putrid Synochus or Continent, inasmuch as it's Course is not one continued Strain from the Beginning to the End, but is attended with remarkable Fits of Remission and Exacerbation. It is distinguished from intermitting Fevers, in that the Force of the Fever does not perfectly cease ; and from the slighter continual remitting Fevers, by it's intense Heat chiefly, which is greater about the vital Viscera, and more moderate towards the extreme Parts, attended with unquenchable Thirst, and a Dryness of the whole Body.

An Inflammation may be excited throughout the whole Body, although the Blood continues to flow through the greatest Number,

Number, if not all the sanguiferous Arteries: But that such Inflammation does obtain in an ardent Fever, we are taught from the Redness of the Face, and frequently of the whole Skin, sometimes continuing so even after Death. The Inspection of Bodies dying of this Fever, demonstrates the cortical Substance of the Brain, in which naturally there is no red Blood to be found, to be all over red, as if it were artfully injected.

They are much deceived who judge that **Sweat** ought to be promoted, thinking thereby to evacuate all the febrile Matter, because in an intermittent Fever the Fit goes off with a copious Sweat. Daily Observations teach us that those are much more difficultly recovered from intermitting Fevers, who seem, as it were, to melt away by those most profuse Sweats; neither is their Cure practicable, unless these Sweats be first suppressed. Hence also the Sweat which attends at the Close of the Fit, is to be moderately promoted by Flesh Broths, Ptifans with Wine, and the like, which afford Plenty of liquid Nourishment: But by no Means by Medicines, nor the Heat of Bed-cloths, lest with such Sweats those Fluids fly off which ought to be retained. The Weakness and Dejection which follow upon those profuse Sweats, evidently demonstrate how prejudicial they are.

Quartan Fevers, which have been disturbed by no powerful Medicines, and have been gradually removed by a proper Regimen in the Spring Season, have left People more strong and firm, and less subject to Diseases than before. For these Fevers contain a Sort of Epitome of that Kind of Life which CELSUS recommends to some Persons in his first Book. Intense Cold is followed by great Heat; during the Time of the Paroxysms, the Patients have generally an Aversion to all Sorts of Food, to which they often have a strong Appetite on the intermediate Well-days: Moreover, by a long continued Quartan the Body is frequently much emaciated, all the Fat being dissolved, and carried off by Urine, and the other Emunctories, even as much as by Mercury itself, or sudorific Decoc-tions; whence an almost radical Change of the Humours is obtained, by a Resolution and Expulsion of the Old, so that the Body is aptly disposed for the Reception and Restoration of new vital Matter; and thus, by a prudent Management in these Fevers, will the Constitution be disposed for Longevity.

If now it be considered, that in the cold Fit of intermitting Fevers, the whole Body trembles and shakes violently, often for several Hours, almost as much in the internal as in the external Parts; that the Extremities of the Arteries being contracted, propel the Humours back into the larger Trunks, as evidently

evidently appears from the Paleness, and an Opportunity they afford for happily removing the obstructing Matter adhering to the Extremities of the Arteries ; it will not seem wonderful, that many Disorders should be thus relieved or removed, which are not at all affected by other Medicines ; more especially as soon as there follows a rapid Motion of the Humours through all the Vessels, whereby the obstructing Matter which was lodged in the Viscera, being rendered moveable by the repeated Concussions, is further resolved. Hence the Reason appears, why these Fevers so frequently remove the most inveterate Disorders from the Body, after they have been in vain attempted by other Medicines.

The best Methods recommendable towards the Cure of these Fevers, are such as conspire together with the Disease itself ; *to resolve what is concreted, to open the obstructed Vessels* ; and thus *to restore the equable and free Circulation of the Humours through the Vessels*. In the Spring Season, and in juvenile Patients, the hotter Medicines must not be used : Autumnal Fevers, on the other hand, more especially those which continue on till the Winter, require warmer Medicines especially if the Patient's Strength is weakened by the Disease, or if the Body languishes by an advancing old Age ; for the *Rad. contra
yerv. serpent. virgin. Saffron*, and the like most penetrating Aromatics, are of the greatest Use. In cold phlegmatic Habits, alkaline Salts are the best Aperients, which yet are often injurious to warm and bilious Constitutions ; and therefore those of the saline neutral Kind are preferred, as *Nitre, sal polycbret. Tart. vitriolat. &c.* Purges and Vomits are not only useful as Evacuants, but also because they wonderfully stimulate and shake the Frame, so as to change it's whole Condition. The *Cortex Peruv.* should never be given in Fevers, where there is a continual fixed Pain, or the Sense of an inward burning Heat, with other Symptoths of an Inflammation.

Vernal intermitting Fevers are of so mild a Disposition, as to require no Medicines, but generally go off spontaneously. They are only observed stubborn in such, who, having their Blood of a very weak Crasis or Texture, it is so easily dissolved, that they waste away with profuse and weakening Sweats ; but even in these they are curable, especially by the Use of the Bark : But autumnal Intermittents are much more difficult to remove, and often require the utmost Attention of the Physician, with every Assistance of Art, in order to cure them.

An acute continual Fever, Inflammation, and the Organ, whose Functions are thereby injured, are three Things chiefly to be considered in acute inflammatory Diseases.

In a true Phrenzy the Brain is primarily affected in an acute continual Fever ; that is to say, the Cause of the Disease is not produced in some other Part of the Body, and translated from thence to the Brain ; but is seated in the Brain itself, or it's investing Membranes, from the very first Attack of the Disease, although by the Violence of the Fever the Disorder may be increased, which is already seated in the Brain. In the symptomatic Phrenzy, the Cause lodges in some other Part, and is afterwards thence translated into the Encephalon.

A considerable Degeneracy of the Humours is scarce ever observed without a concomitant Disturbance of the Encephalon.

A black Tongue denotes either a Deficiency of the thin Lymph of the Blood, or that the larger Vessels, distended with the unpassable Blood, compress the adjacent smaller ones ; whence the exhaling arterial Ducts at the Surface of the Tongue become dry and gangrenous : Hence a black Tongue, especially if it be dry at the same Time, presages the very worst Condition of the Humours.

Lethargic, comatous, and cataleptic Disorders, are of the worst Presage in a Phrenitis.

A Flux from the Bowels is salutary, not only because it discharges the morbid Matter, but also because it empties the abdominal Viscera of the Humours which flow thither, and lessens the Resistance to the Impulse of the Blood ; and by that Means happily diverts the Impetus and Quantity of the Humours from the Head ; an Event of the utmost Consequence in the Cure of a Phrenzy.

The most dangerous Phrenzy may arise from sleeping in the open Air, with the Head exposed to the hot solar Rays.

To come in at the End of the Article of INTERMITTING FEVERS
or AGUES. Vol. I. Page 79.

MONRO refers *Intermittent Fevers or Agues* to the same Tribe of Diseases as the Remitting Fever.

We call it, says he, an *Intermittent Fever*, when the Paroxysms are distinct, begin with a Cold, followed by a hot Fit, and go off with a Sweat; and the Patient is cool and free from the Fever in the Interval between the Fits.

Many, continues he, have been the Causes alledged to produce this Disorder. The great Quantity of Bile that is often thrown up in the Fit, has caused it to be ranked among the bilious Diseases; and the Seasons of the Year in which it is most frequent, and the low moist Situations of the Places where it is endemic, have led to suspect, that an obstructed Perspiration, and a Tendency in the Juices to Putrefaction, are the Cause of it.

But whatever Cause we may suppose to give Rise to the first Fit, it is difficult from hence to account for the regular Returns of the Paroxysms and Interrissions. For my own Part, after considering Intermittents, which observed a regular Type in the Course of a Salivation; their being so easily stopped by the Bark without any sensible Evacuation; their being sometimes put away by a Stimulus externally applied, as a Poultice of raw Garlic to the Wrists, or by a Fright, or sudden Plunge into cold Water; their returning after slight Errors in Diet, and sometimes by the Operation of a Purge, or of Bleeding; their attacking sometimes only particular Parts, and many such anomalous Accidents in these Fevers; I must confess that I am unable to form any Idea, either of their Origin, Seat, or Cause.

In general there is a Prejudice against Bleeding in Agues, after they become regular; but I have always observed, that where Patients are strong and plethoric, and the Fever in the Paroxysms rises high, or the Pulse remains quick in the Intervals, that taking away more or less Blood, and giving antiphlogistic Medicines in the Beginning, eased the Patient, moderated the Fever, and made it safer to give the Bark soon; and I never saw the least Inconvenience in the Practice; but on the contrary, have observed several intermittent Fevers change into continual ones from the Neglect of this Evacuation; nay, I have seen Cases where the Bark, instead of stopping the Ague, rather increased the Fever, till the Patient was bled, and had pursued the antiphlogistic Method for some

Time ; after which the Bark had it's proper Effect, and put an End to the Disorder.

As soon as Agues become regular, and the Patient is quite cool, and free from any Fever in the Intervals, give the Bark ; which soon puts a Stop to the Paroxysms, without the least bad Consequences : But before giving the Bark take Care to empty the first Passages by Emetics and Purgatives, where there is no Symptom to forbid their Use. Where the Patient is weak, and the Fit so violent, as to make it necessary to stop the Ague, before there is Time to administer Emetics and Purges, add so much Rhubarb to the first Dose of the Bark, as to procure some loose Stools, which will not prevent it's stopping the Ague, at the same Time that it answers the Use proposed, of carrying off any putrid Humours that may be lodged in the Intestines.

In England, vernal, quotidian, and tertian Agues frequently go off by bleeding and taking the saline Draughts, and cooling Medicines for some Time, without the Use of the Bark ; but in Germany very few yielded to this Treatment, and we were obliged to give the Bark before we could put a Stop to them.

Sometimes, when Patients have been reduced low by Agues, the Stomach becomes so squeamish as to reject the Bark in every Shape it can be given : In such Cases, when the Ague cannot be stopped by other Means, it may be administered with great Advantages in Clysters : Children have been cured by Bark Clysters, after the Bark Waistcoats, and other Means used had proved unsuccessful.

When Agues were attended with a Dysentery, and the Purgings and Gripes were most severe on the Days of the aguish Paroxysms, I was obliged at first to neglect the Ague, and to treat the Disorder entirely as a Flux. If there was much Fever, the Patient strong, and the Pains in the Bowels acute, I ordered Bleeding, and then a gentle Emetic, and some Doses of Rhubarb, or the following :

R Mann. opt. 3 fl. Ol. Oliv. 3 vi. Vitell. ov. q. s. tere in Mortario, addendo paulatim Sal. cathart. amar. 3 j. solut. in Ag. Font. calid. 3 iii. Sp. Vin. Gall. 3 iii. M. pro Dosi matutin.

I directed a gentle Opiate in the Evening, and other Medicines proper in a Dysentery, till it's Violence was abated, before I gave the Bark ; yet, in some Cases, where the aguish Paroxysms were very severe, and helped to increase the Purgings, and the Patient was in Danger of sinking, I gave the Bark,

Bark, though the Flux still continued, and the Method followed, was to give the Bark, mixed with *Discord.* and Opates, in the Intervals between the Purges.

By this Treatment both Fluxes and Agues were carried off. But where the mentioned Cautions were neglected, the Bark generally made the Patients worse, and was obliged to be omitted till the Violence of the Purging was over.

In Agues accompanied with a slight Jaundice in the Beginning, for the most Part, the Pulse continues rather quick in the Intervals between the Paroxysms, and the Patients complain of Sickness for the first two or three Days. With such the Bark always disagrees, till the Feverishness between the aguish Paroxysms is gone; and I have found, that the best way of treating them, is to bleed in the Beginning, if there is much Fever, and then to give a Vomit and a Purge, and to repeat them, if necessary; and where there is no purging, to give the saline Draughts, and other cooling Medicines; and to add a few Grains of Rhubarb, or to give so much of the *Pil. saponac. c. Rheo.* daily, as to procure one or two loose Stools.

After the Ague has regular Intermittions, and the Patient is quite cool, and free from Fever in the Intervals, if the Disorder does not yield to the above Treatment, as indeed it seldom does, then I give the Bark freely; even though the slight icteric Symptoms still remain; and it will put an End to the Ague, and remove the Jaundice at the same Time, without the least Inconvenience to the Patient. In such Cases I have generally added a few Grains of Rhubarb to the first Doses of the Bark; or gave the Bark made up into Pills with Soap, adding occasionally a few Grains of Rhubarb.

Icteric Symptoms with the Ague, are often accompanied with bilious Vomitings in the Time of the cold Fit: The Patient is sick, with a bitter Taste in the Mouth, before the Approach of the Paroxysm; yet, though they take Emetics, which operate freely at this Time, they seldom bring up Bile; the Sickness and bitter Taste, however, continues till the cold Fit comes on, and then they vomit Bile in large Quantities. In such Cases, after Emetics and Purges, the Ague being brought to regular Paroxysms, with free Intermittions, the Bark administered as before, removes the Ague and icteric Symptoms, without the least bad Consequences.

Many Practitioners of great Repute have been prejudiced against the Bark; alledging, that the free Use of this Medicine often lays the Foundation of Obstructions in the abdominal Viscera, especially when it has been given where there was an icteritious Colour in the Eyes and Countenance; and that

that in such Cases we ought not to give the Bark till these icteric Symptoms are gone. At first I was very Cautious of giving it under such Circumstances ; till meeting with some Cases where the Paroxysms were severe, and became more frequent, while the Patient was so low as to be in Danger of sinking under the Disorder, I gave the Bark freely, as the only Remedy capable of preserving life ; which not only stopped the Ague, but carried off the icteritious Symptoms, and restored the Patient to perfect Health. CLEGHORN says, " Where there is an icteritious Colour of the Eyes, we are told that the Cortex should not be administered ; though, in my Opinion, it is far the most dangerous Part to delay it, after the first Appearance of that Symptom."

I have, ever since, given it freely, in the Manner above-mentioned, with great Success, and never saw any Mischief from using it : Indeed sometimes, where it was given rather too soon, it did not set easy on the Stomach, and made the Patients hot and restless ; but by laying it aside, these Effects immediately ceased ; and generally, after a little Time, the Paroxysms became milder and more distinct, when the Bark was again administered, agreed with the Stomach, and put an End to the Disorder : And I am now convinced from Experience, that the Cases in which the Bark has done Mischief, or given Rise to Obstructions of the abdominal Viscera, are but very rare ; and that these Mischiefs mostly arise from the Obstinacy of the Disorder, and not from the Use of this Drug ; for I have oftener observed Obstructions where little or no Bark had been used, than where it was given freely.

What probably has given Rise to the Belief of the Bark's doing so much Mischief, is, that in Holland, and other low fenny Countries, where Agues are endemic, they are oftentimes extremely obstinate, and yield hardly to any Remedies ; and if they are stopped by the Bark, they often return soon after, and, by their long Continuance, occasion Obstructions of the abdominal Viscera, which have been attributed to the Use of this Specific.

In some few Cases, a Purging has accompanied these icteric Symptoms, which was treated much in the same Manner as when the Ague is accompanied with a Flux ; I gave Emetics and Purgatives, and the *Mindereri* Draughts, with Mithridate, throughout the Day, and Opiates at Night, if the Purging was violent : If it continued, accompanied with regular aguish Fits, the Bark, with Astringents, generally removed both.

When ever the Bark had no Effect, and it's Use persisted in seeming rather to exasperate the Paroxysms, and to do Hurt, and no Remedy I tried had a better Effect ; I gave the following Medicines to divers Patients ; the saline Draughts and cooling Medicines ; Infusions of Camomile Flowers, and of other Bitters ; Dr. Merton's Powders of Camomile Flowers, Salt of Wormwood, Myrrh and Alum ; Alum and Nutmeg ; large Doses of Sal Ammoniac ; large Quantities of Spirits of Hartshorn ; the Antimonial Drops and Powders ; to some I gave Emetics, both in the Intervals, and immediately before the fits ; in some I tried to promote Sweats before the approach of the Fits, by making them drink freely of warm Liquors while they kept in Bed, and took diaphoretic Medicines ; and to others I applied Blisters. — But all did not put a Stop to some of these Agues. Some became Chachectic, and died Dropsies or Diarrhæas ; some, from Obstructions of the Liver, Spleen, &c. fell into Jaundices and Dropsies, which carried them off. The opened Bodies exhibited Indurations of those Viscera, Suppurations of the Liver, and what they call the Ague-Cake, which is an extravagant Enlargement of the Spleen. Others fell into Consumptions, and one died in the cold Fit*.

Patients will sometimes be afflicted with periodical Head-achs, returning, in most, every Day, but in some only every second. Those Head-achs usually begin in the Forenoon, and are very violent while they last, confining them to their Beds for some Hours : In the Intervals they are quite cool, and free from Fever. Sometimes, though not always, the Urine deposits a little Settlement as the Fit goes off. Commonly the Pain is all over the Head, but most severe in the Forehead ; though sometimes it is confined to one Side only.

These Head-achs I treat entirely as Agues of the same Type. If the Patient be strong, Blood is taken away ; then an Emetic and Purge prescribed ; and lastly, the Bark liberally, which generally puts an End to the Complaint, without any bad Consequences attending.

* The cold Fit is the most dangerous Time of the Paroxysm, and the greatest Part of those who die of Agues die at this Time. — *Van Swieten* says, he has seen the Trembling and Shaking so great in the Time of the cold Fit of Quartans, that the Teeth have dropped out of the Head.

To come in at the End of the Article of MALIGNANT and
GAOL FEVERS, Vol. I. Page 113.

FROM a Journal of the Writings of most Authors, ancient and modern, who have treated of malignant Fevers, it will be a very difficult Matter to form a just Notion of this Disease. The Truth is, they abound with such discordant and obscure Accounts of it, that all we can make out from them seems to amount to no more, than that the Nature of a malignant Fever may still pass for a Problem unsolved.

Nevertheless, I cannot think it a Matter very extraordinary difficult to form an adequate Notion of it, and to delineate it's Character, provided a due Attention be given to the Phænomena which it presents. However absurd the Term *Malignity* may really be, we are yet necessitated to adopt it, or risque the Censure of abolishing a Custom whose Antiquity has rendered respectable; and thus we are continually making a scandalous Use of it, applying it not only to Fevers accompanied with alarming Symptoms, but even to such as have degenerated through a wrong Treatment. SYDENHAM was not perhaps much wide of the Mark, when he pronounced, that the Word *Malignity*, as relative to Diseases, had been more fatal to Mankind, than the Invention of Gun-powder. Those who first introduced it, applied to those Fevers only, wherein Nature seems to be oppressed, and the State of the Pulse and of the Symptoms are not answerable to the Violence of the Disorder; *quasi clancularias Vitæ strueret Insidias*; accordingly we are taught by daily Experience, that Death comes on in this Kind of Fever, when least expected. It is, however, a mistaken Notion that *all malignant Fevers* are of this Character. The Progress of some of them is regular and open, without any fallacious Symptoms, as of that denominated *Castrensis vel Hungarica*, and in several others sufficiently manifested by the Degree of the Heat, the Velocity of the Pulse, and the Violence of the Symptoms; and these Fevers, ought not to be, as they have been, by some Writers of the first Rank, confounded with the *ardent Fever*, which is of shorter Duration; the *Malignant*, however violent, never terminating before the twentieth Day, and almost always later: Add to this, that it is generally epidemic and contagious, like the Pestilence, whence many Writers range both of these Diseases under the same Clas.

LIEUTAUD.

Monro observes, that the *Malignant Fever* begins variously in different Subjects; for the most Part with Cold and Shivering, Pain in the Head, and the other Symptoms commonly described

described as peculiar to this Fever. In some it begins with a sharp Pain of the Side, or other Parts, attended with acute inflammatory Symptoms; in others it puts on the Appearance of the common, low, or nervous Fever, for a Day or two. Blood drawn in the Beginning from some Patients does not seem much altered; from others it throws up a strong inflammatory Buff; and it is likewise a Remark of *Huxham*, that the Blood shall appear buffy or sify in the Beginning of malignant Fevers; and yet drawn two or three Days after shall be quite loose, dissolved, and, as it were, sanguous.

The Reason of this Difference of Symptoms in the Beginning, and of these different Appearances of the Blood, seems to be, that such Persons as labour under Pleurisies, low, or other Fevers being brought to Hospitals or other Places where the malignant Fever is frequent, have their original Disorders changed into this Fever by breathing a fowl infected Air, and by their Communication with those ill of the Fever, and of Fluxes: Sometimes a mere Acrimony of the Blood, set in Motion by a supervening Fever, determines the Disorder to be of this Kind; and I have always observed, that those are most apt to catch this Fever whose Constitutions have been broke down by previous Disorders.

As to the different Forms of this Fever, some have only a Quickness of the Pulse, attended with a slight Head-ach and Sickness, Whiteness of the Tongue and Thirst, and a Lowness and Languor; which continue for a Week or more, and then go off, either insensibly, or with a profuse Sweat, succeeded by a plentiful Sediment in the Urine. Most of those who fall into profuse kindly-warm Sweats, recover, the Sweat carrying off the Fever; such Sweats continue for twelve or twenty-four Hours, and sometimes for two, three, or four Days. In those who have the Fever in this slight Degree, *Petechiae* seldom appear; and it is only known to be this Sort of Fever by the other Symptoms, and the malignant Fever being frequent at the same Time in Hospitals, Prisons, &c. *Pringle* very justly observes, that these low Degrees of this Fever are hardly to be characterised, and are only to be discovered in full Hospitals, by observing Men languish; though the Nature of the Illness, for which they are admitted, should seem to admit of a speedier Cure.

For the most Part the Fever appears with more violent Symptoms; the Tongue becomes parched and dry, and more or less of a Delirium invades, attended with the other peculiar and well known Symptoms.

When the Petechiæ appear, they come out on the 4th, 5th, 6th, or 7th Day; seldom after the 11th or 12th. RAMAZINI mentions a Petechial Fever which had been frequent for three Years at *Modena*; in which the Petechiæ appeared only on the fourth or seventh Days, and almost all those died in whom they appeared on the first Day. These Spots came out first on the Neck, the Back, and Breast; and it was observed, that none escaped unless the Spots extended themselves as far as the Nails of the Toes, vanishing by Degrees on the upper Parts. The Petechiæ I have observed to appear mostly on the Breast, Back, Arms, and Legs, and sometimes, though rarely, on the Face; either like small distinct Spots of a reddish Colour, or the Skin looks sometimes as if it were marbled or variegated as in the Measles, but of a Colour more dull and lurid. As they begin to disappear they incline to a dun or brown Colour, and look like so many dirty Spots. I never saw them rise above the Skin, nor ever discerned any Miliary Eruptions in this Fever: However, we are not hence to conclude that Miliary Eruptions are never observed in Fevers of this Kind. *Huxham*, *Hasenobrl*, and *Lind*, and many other good Practitioners, mention their having seen them.

Many have no Petechiæ through the whole Course of their Disorder; but in those that are very bad, the Countenance looks bloated, and the Eyes reddish, and somewhat inflamed; and though the Skin be commonly dry, yet the Perspiration from the Lungs is very strong. By these Circumstances one may frequently discover that the Patient labours under a malignant Fever, without asking any Questions.

When Persons are seized with a Fever suspected to be of the malignant Kind, our first Care should be to lay them in airy Places, separate as much as possible from other People, and keep them extremely clean; put them on a low Diet, and allow as much Barley or Rice-Water, as they chose to drink, which may be acidulated with *Spir. Vitrioli*.

For the first two or three Days it is seldom to be distinguished, with Certainty, that the Fever is of the malignant Kind, even though there be Reason to expect it. The Pain of the Head, the Fullness and Quickness of the Pulse, often leads us to the taking away more or less Blood, which the Patient bears easily, and for the most Part it gives Relief. *Huxham* says, bleeding to some Degree is most commonly requisite, nay, necessary; but then he observes, that the Pulse in these Cases sinks surprizingly after a second bleeding, and sometimes after the first: And *Pringle* takes Notice, that in the second

cond Stage of the Disorder large bleedings have generally proved fatal, by sinking the Pulse, and bringing on a Delirium. I seldom repeat this Evacuation where I suspect a Malignancy in the Fever, unless a pleuritic Stich, an acute Pain of the Bowels, or some other accidental Symptom requires it; or the Patient is strong, and there be evident Symptoms of Fullness, immediately before I intend giving the Bark; for under other Circumstances, if bleeding was repeated, and other Evacuations used freely, I always observed that it did harm, and was apt to sink the Patient too much.

After bleeding, if the Patient is costive, or complains of Grips, I give a Dose of Rhubarb, or Salts, or a laxative Clyster; but where there is much Sicknes in the Stomach I give a gentle Emetic in the Evening, and the Purge the next Morning. *Pringle* advises giving a Vomit, by Way of Prevention, on the first Appearance of the Symptoms, and at Night, to force a Sweat by a Dram of Theriac, with ten Grains of *Sal. Volat. C. C.* and some Draughts of Vinegar Whey, and to repeat the same the following Night; and says, he has often seen those Symptoms removed which he apprehended to be Forerunners of this Fever received by Contagion; but, previous to Vomits or Sweats, if the Person be plethoric, it will be necessary to take away some Blood. If, in the Course of the Disorder, the Sicknes and Nausea return, attended with Griping and Costiveness, or very fetid loose Stools, I repeat the Rhubarb, &c. and give a gentle Opiate in the Evening, after the Operation.

After Evacuations, if the Pulse keeps up, I commonly give nothing but the saline Draughts, with the *Pul. Contrayeru.* or some temperate Medicine, for the first Day or two. As soon as I can distinguish the Fever to be of the malignant Kind, and that the Pulse rather sinks, I join some of the Cordials to the saline Medicines, and allow the Patient more or less Wine, according to the Degree of the Fever. *De Haen* has found fault with *Pringle* and *Huxham* for administering cordial Medicines and Wine in the low State of this Fever; but nothing has answered so well in all my Practice, as these Remedies under such Circumstances; and I have frequently seen every Symptom changed for the better by their Use; and even when I gave the Bark, in the Manner recommended by *De Haen*, I often found it necessary to join the free Use of Wine, Cordials, and Blisters, in order to support the Patient's Strength. *Petrus a Castro*, in his Account of a petechial Fever, which was frequent at Verona, says, that the Sick had a great

desire to drink Wine, and that he gave them Wine in small quantities, and directed them to drink it slowly, and to be careful not to swallow it too quickly. *Thirkell*

Thirst, and an Aversion to Meat, but all of them had the strongest Desire to Wine, and were perpetually asking for it; even those who at other Times were very temperate; and that this proceeded from an Instinct of Nature, which wanted something to restore the Strength. HUXHAM tells us, that he cannot but recommend a generous red Wine, as a most noble, natural, sub-astringent Cordial, and perhaps Art cannot supply a better; and is confident that sometimes at the State, and more frequently in the Decline of putrid Fevers, it is of the highest Service. If the preventive Method does not succeed, LIND advises to have Recourse to Blisters, and says, that Sixteen out of Twenty will next Morning be free of the Fever, provided the Source of their Infection be not highly poisonous, or from a violent Contagion.

After reading the Treatises of *De Haen* and *Hasenohrl* on this Fever, I resolved on giving the Bark in large Quantities, and found it to answer their Recommendation. It is indeed long since the Bark has been given in malignant Disorders; though I do not know that any Body gave it in this Fever before these two mentioned Gentlemen, to the Amount of an Ounce *per Day*. RAMAZINI mentions it's having been tried in the petechial Fever of the Years 1692, 3, 4. And in a Treatise on the Plague published at *Petersburgh*, in 1750. we are told, that in the French Translation of the Philosophical Transactions for the Year 1732, it is said that Mr. Amyand informed the Academy of Surgery at *Paris*, that Mr. RUSHWORTH, Surgeon, had wrote to Sir *Hans Sloane*, that when he was Surgeon to a Ship in 1694. he had cured some Men ill of the malignant Fever, attended with pestilential Buboes, by Means of the Peruvian Bark. HUXHAM has recommended a Tincture of the Bark, and PRINGLE, a strong Decoction of it in these malignant Fevers.

There is one Thing to be observed with respect to malignant Fevers, which is, that if ever they appear in large crowded Hospital, unless we can thin the Wards, and procure a free Circulation of Air, and keep the Hospital and Sick extremely clean, the Fevers continue to spread, and great Numbers will die; and even the most efficacious Remedies will have little or no Effect: And that when once the Infection is grown strong, it requires the greatest Care, and some Time before it can be entirely got the better of. — And that, if a great Number of Men, ill of this Fever, be kept in the same Ward, they will help to keep up the Infection.

Many Patients, towards the Height of this Fever, sooner or later, have Purgings, which seldom prove critical; and some

some are seized with the Flux. A gentle Diarrhæa, such as does not sink the Patient, is commonly of Service; but if violent, or a Dysentery comes on, the Case is always dangerous; for whatever stops the Flux increases the Fever; and if the Purging or Flux continues it sinks the Patient.

In this Fever it is no uncommon Thing for the Patients to vomit Worms, or to pass them by Stool, or to have them come up into their Throat and Mouth, or sometimes in their Nostrils, while they are asleep in Bed, and to pull them out with their Fingers. *Pringle* seems to embrace *Lancifus's* Opinion, and believes that these Worms are not the Cause of the Fever; but being lodged in the Intestines before the Fever comes on, they are annoyed by the Increase of the Heat, and the Corruption of the Humours, and so they begin to move and struggle to get out. This seems evidently to be the Case with many Patients; though in some the Worms seem to give Rise to the Fever, which the bad State of the Patient's Humours, or the infected Air of Hospitals determine to be of this Kind. In many the Fever lessens or goes off entirely soon after, and they are no more affected with Symptoms of Worms. But some, notwithstanding, are subject to frequent Sickness, Pain of the Stomach, and Uneasiness in the Bowels, and Discharge some Worms from Time to Time. Others have frequent Relapses into Fevers, which seems to be owing to the Irritation of these Insects.

As soon as I observe a Patient to be troubled with Worms, if his present Situation does not prevent it, I give twenty-five or thirty Grains of Rhubarb, with five or six Grains of Calomel; and if there is much Sickness, I likewise give an Emetic, which, in some Cases, brings up two or three Worms of the round Kind, and gives great Relief. But where the Fever is violent, I am obliged to neglect this Symptom of Worms for the present; and when the Fever is over, if there still remains any Symptom of Worms, I give the purgative Medicine once or oftener, and in the Intervals give the *Pulvis Stanni*, or an Infusion of Camomile Flowers; and in some Cases oily Medicines. By these Means most Patients get well, and recover their Health, and seem freed, at least for the present, from these troublesome Insects; though some continue to complain of Sickness, and other Worm Symptoms, for some Time afterwards.

In malignant Fevers many complain of a Dysury, and some of a Suppression of Urine, especially towards the Decline of the Fever; and others of a Scalding and Pain in making

making Water, though without any venereal Complaint. Decoctions of Gum Arabic, with some of the *Spir. Nitr. dulc.* and oily Mixtures, and Opiates, commonly give immediate Relief, and soon remove the Complaint.

One of the first salutary Symptons which most generally appears upon those who are recovering, is a Dulness of Hearing, or Deafness, which comes on about the Height of the Fever, and continues a longer or shorter Time, generally till the Fever is entirely gone, and sometimes for a considerable while afterwards. *Riverius* takes Notice, that according to *Hippocrates*'s Doctrine, Deafness is a very dangerous Symptom in the Beginning of acute Disorders, though it be a good Omen, and portends Health, when it does not appear till the Height of Fevers, especially of the malignant Kind; and adds, that he himself has a thousand Times observed, when this Symptom of Deafness came on at the Height (*in Statu*) that those labouring under this Fever have recovered. For the most Part, I do nothing for this Complaint, which goes off as the Patient recovers his Strength. When it continues long, Blisters applied behind the Ears, or on the Neck, and washing the *Meatus auditorius* with an emollient Decoction, wherein a small Quantity of Soap is dissolved, proves of Service.

Swellings of the parotid Glands appear in many Subjects, towards the Decline of the Fever, which come to Suppuration, and prove critical. But although these parotid Swellings are in general so favourable, we are not to imagine that this will always be the Case: For *RIVERIUS*, though he speaks of their proving for the most Part critical; yet he tells us, that in the Year 1623. this Fever was epidemical at Montpelier, and that one Half of the Sick died; and particularly, that most of those who had Swellings of the parotid Glands appearing about the ninth or eleventh Day, were carried off within two Days of their Appearance: And at length concluding that the Cause of their Death was owing to a greater Quantity of morbid Matter in the Blood than the Part was able to contain, and that Evacuations by bleeding and purging were the only Remedies likely to give Relief, he ordered three Ounces of Blood to be taken from a Patient, notwithstanding he was so low that the Surgeon was afraid he would have died in the Operation: The Pulse rose on bleeding, and he ordered four Ounces more to be taken in three or four Hours afterwards: The Pulse rose still more, and he ordered a Dose of Sena and Rhubarb to be taken next Day, and the Patient recovered. He adds, that all those who were treated in this Manner, got well.

As soon as these Swellings of the parotid Glands appear, I endeavour to bring them forward to Suppuration, by the Application of emollient Cataplasms, gummos Plasters, and have them opened as soon as a Fluctuation of Matter is to be felt, and afterwards treat them as common Abscesses. RIVERIUS very justly observes, that when such Tumours increase in such a Manner as to endanger Suffocation, they ought to be opened before they come to Maturation; and PRINGLE directs not to wait for a Fluctuation of Matter, but to open the Abscess as soon as it can be supposed to have formed.

Sometimes critical Buboes are formed on the Groins and Armpits in this Fever. This Symptom is taken Notice of by Authors, but does not seem to be so frequent as many of them would make us believe. Neither HUXHAM nor PRINGLE mention their having seen such Buboes, and LIND says he never saw them till the Beginning of the Year 1763. For my own Part three are all I ever met with, and those in the Groin.

Sometimes the Patients complain towards the Decline of the Fever, of a Pain all along the spermatic Chord, and soon after a swelling of the Testicle appears: HIPPOCRATES takes Notice of this Symptom in some Fevers. By bleeding and applying emollient Fomentations and Cataplasms, and bathing the pained Part on the first Attack with *Spirit. Mindereri*, the swelling of the Testicle may be prevented; but if the Swelling be already begun, it will most probably end in a Suppuration of the Scrotum or Testicle, which will heal very kindly.

Many, while recovering from this Fever, are seized with an Ophthalmia or Inflammation, for the most Part, of one Eye only, sometimes of both. If the Patients are strong, I bleed them, and apply Blisters behind the Ears, and sometimes, when the Pain is great I lay Poultices of Bread and Milk to the inflamed Eye; which, with the Assistance of some cooling Physic, commonly removes this Complaint; though in some obstinate Cases it will be necessary to repeat the Evacuations, apply Leeches to the Temples; and after the acute State of the Disorder is passed, to order the Eye to be washed frequently with the *Collyrium Vitriolicum*, or *Collyrium Saturninum*. However, it should be observed, that if these astringent *Collyria* are used too soon, they may do hurt. If these Ophthalmias are neglected in the Beginning, the Inflammation frequently rises to a great Height; and leaves an Obscurity or Film, over the Cornea, an Impediment to the Sight very difficult to remove.

Towards the Decline of these Fevers, and very often during the Course of them, several complain of Pains in their Feet and Toes, some of which end in Mortifications, especially if the Patients lie in cold Places. The best Remedy I have found to be, bathing the Feet in warm Water, or warm Aromatic Fomentations; and after keeping them for some Time in these warm Liquors, to dry them well, and then rub them with the *Liniment Saponac.* or the *Liniment Volat.* and wrap them up in Flannel: And if any Lividnes or Redness appears on the Parts, I give plentifully of the *Cortex* with Cordials, if not contra-indicated by the other Symptoms. If Vesicles arise on the Part, and a Gangrene is formed, I direct the Part to be scarified and proper Dressings, with warm Aromatic Fomentations and Cataplasms to be used.

Patients reduced very low by this Fever, especially after frequent Relapses, are subject to oedematous Swellings, chiefly of the Feet, towards Evening, after sitting up all Day, which generally go off as the Sick recover their Strength; but in some they continue obstinate and extend towards the Thighs, and even all over the Body.

When such Swellings are recent, and confined to the Feet and Legs, commonly the Bark, joined to the lixivial Salts, or the *Oxymel Scillitic.* and a Purgative once or twice a Week, removes them: An Infusion of Horse-radish has likewise a good Effect.

When the Swellings are so obstinate as to resist the Force of all internal Remedies; Punctures made in the Feet, or lower Part of the Legs are of great Benefit, by furnishing a Drain to the Water; and Blisters applied to the Legs. If the Punctures were made before the Patient's Strength be exhausted, and he labours under no other Disorder, I never observed any bad Effects from them; But in Cases of great Weakness, especially if combined with a hectic Fever, or purging, and the oedematous Swellings are large, a Gangrene and Death are most Times the Consequence.

Putrid malignant Fevers, attended with Eruptions, are taken Notice of by HIPPOCRATES and other ancient Authors: But whether they meant that particular Sort of Eruption which we now call *Petechia*, is uncertain; as their Descriptions are not clear enough to distinguish them from the Miliary and other Kinds. But since about the Year 1500. we have had many accurate Accounts of Fevers of this Kind, which have appeared in different Parts of the World. From all which it appears, that such Fevers take their Rise, either from some antecedent

Acrimony

Acrimony of the Blood, or what is more frequently, from some Source of Corruption or Contagion; from the Use of putrescent animal Food, and a Want of fresh Vegetables and acescent Liquors; from the putrid Steams of corrupted animal Substances; from the moist putrid Vapour of low marshy Places in Summer, where there is stagnating Water, which corrupts by Heat; from the foul Air of crowded Hospitals, Gaols, and Ships, or any such like Causes.

When once this Fever is begun, it is observed to be of a contagious Nature and, if proper Care is not taken, to effect those who attend the Sick, or who live in the same Room, or breath the same Air with them.



To follow immediately the Article of PESTILENTIAL FEVER.

Vol. I. Page 123.

IT is beyond Dispute, that the Plague appears in a different Manner in different Countries, and differently in the same Country, in different Years: The Fever in some Years proving more violent, and having some Symptoms different from what it has in other Years, I take for granted, must be the Reason of the remarkable Difference that appears in the Remarks of the most celebrated Authors who have written on this Subject.

There is one extraordinary Symptom, which most of these Authors mention, though none of them prove it, or pretend to have seen it; which seems to be inconsistent and incompatible with the animal **Œconomy**; making still proper Allowance for Omnipotence and divine Vengeance, as in that of Sennacherib's numerous Army; and many other such Plagues mentioned in Scripture. What I mean, is, that a Person may die of the Plague instantaneously, or in a few Hours, or the same Day, that he receives the Infection. In Turkey it is well known, that all such as have the Plague, conceal it as much as they can, and walk about as long as possible. And I presume it must be the same in all Countries, for the same Reason, which is, the Fear of being abandoned and left alone; and so, when they struggle for many Days against it, and at last tumble down in the Street, and die suddenly, People imagine, that they were then only infected, and that they died instantly of the Infection; though it may be supposed, according to the Rules of the animal **Œconomy**, that the noxious Effluvia must have been for some Time mixed with the Blood before they could produce a Fever, and afterwards

that Corruption and Putrefaction in the Blood and other Fluids, at last stops their Circulation, and the Patient dies. Thus a Greek, who, in 1752. spoke to the British Envoy's Master of the Horse at his Window, at Constantinople, went and died in an Hour afterwards in a Vineyard ; and it was said he died suddenly, though it was very well known to many that he had the Plague upon him for many Days. A Sailor of Capt. Hill's, infected in Candy, in 1736. was a Fortnight in his Passage to Smyrna, yet he was five Days in the Hospital there before he died. Mr. Lisle's Gardener was indisposed twelve Days before he took to his Bed, and he lay in Bed eight Days before he died, in July 1745.

It is true *Thucydides*, in his Account of the Plague of Athens, relates, that some were said to die suddenly of it ; which may have led others into the same Way of thinking : But *Thucydides* must be allowed to have known very little of the animal Cconomy, being no Physician ; and he owns, moreover, that when the Plague first attacked the Piræus, they were so much Strangers to it at Athens, that they imagined the Lacedæmonians, who then besieged them, had poisoned their Wells, and that such was the Cause of their Death. Besides, he pretends to affirm, from the little Experience he had of the Plague, that the same Person cannot have it twice, which is absolutely false. The Greek Padré, who took Care of the Greek Hospital at Smyrna for fifty Years, assured me, that he had had the Plague twelve different Times in that Interval ; and it is very certain that he died of it in 1736. Mons. *Brossard* had it in the Year 1745. when he returned from France ; and it is very well known, that he and all his Family died of it in April 1762. The Abbé, who takes Care of the Frank Hospital at Pirera, declared to me, on Oath, that he has had it already, here and at Smyrna, four different Times. But what is still more extraordinary, is, that a young Woman, who had it in September last, with it's utmost pathognomonic Symptoms, as Buboes and Carbuncles after a Fever, had it again on the 11th of April, and died of it some Days ago, while there is not the least Surmise of any Accident in or about Constantinople since December, this only one excepted : But there died four Persons in the same House in September ; and as the House was never well cleaned, and this young Woman always lived in it, she was at last attacked a second Time, and died.

The only Antecedents I could observe to this Malady was a great Murrain among the black-Cattle in May, 1745, and in the Beginning of June the same Year, Swarms of Butterflies, and

and great Numbers of Caterpillars, and afterwards a violent Plague; which I predicted in 1752. as also, from similar Fore-runners, another in 1758. in the Months of August and September.

The Plague is now more frequent in the Levant than when I came first into this Country, about thirty Years ago; then they were almost Strangers to it in Aleppo and Tripoli of Syria, and it seldom appeared at Smyrna; now they have it frequently at Aleppo, and Summer and Winter at Smyrna, though never so violently in the Winter, which must be owing to the great Communication by Commerce over all the Levant, and more extended into the country Villages, than it used to be.

I take the Plague to be an Infection communicated by Contact from one Body to another, the subtle Miasmata and volatile Steams entering the cutaneous Pores of sound Persons within their Reach, or mixing with the Air which they take into their Lungs, and so, advancing by the *Vasa inhalantia*, mix with the Blood and animal Fluids, whose Motion and Velocity they encrease by their noxious and active Qualities, and in some Days produce a Fever.

Some are of Opinion, that the Air must be infected, and that it is the principal Cause of these Plagues; whereas, I presume that the ambient Air is not otherwise concerned, than as the Vehicle which conveys the venomous Particles from one Body to another, at least in such Plagues as I have seen hitherto at Smyrna and Constantinople; allowing always, that the different Constitution of the Air contributes very much to propagate the Plague, hot Air rendering the venomous Steams more volatile and active, and Cold contracting and dulling them. A Person in the Plague may be said to have a contagious and poisonous Air in his Room and about him, while, at the same Time, the open Air is free from any dangerous Exhalations; so that I never was afraid to go into any large House wherein a plagued Person lived, provided he was confined to one Room.

The pestilential Fever shews itself by Chilliness and Shiverings, even in the warmest Months, so very like the first Approaches of an Ague, as no Ways to be distinguished from them at first Sight. This cold Fit is soon accompanied with a Nausea, and Desire of vomiting; when the Patient discharges a vast Quantity of bilious Matter, with great Uneasiness and Oppression of the Mouth of the Stomach, attended sometimes with a dry Cough. Next he has a violent Head-ach and Giddiness, with some slight convulsive Motions; breathes

hard ; his Breath and Sweat stink ; his Eyes are ruddy, and he looks frightened, sad, and pale ; his Thirst insatiable, Tongue yellowish, with a red Border ; he has a total Loss of Appetite, Restlessness, great inward Heat, more than could be expected from the Fever, which is sometimes pretty moderate, but grows stronger frequently towards Night : He often bleeds at the Nose. In this dismal Condition he continues some Days, till the venomous Matter begins to be separated, in some Measure, from the Blood, and discharge itself critically at the Surface, by the Eruptions of Buboes, Carbuncles, Blaims, petechial Spots, and some small Vesicles or Blisters : But all these Symptoms are not to be looked for in the same Person. When these Eruptions appear, and grow sensibly, the Patient finds himself somewhat relieved from his great Oppression. Some, in the above State, have a very violent Fever, sometimes attended with Delirium and Phrenzy ; others are stupid, sleepy, and complain of nothing. Such as are furious and delirious seldom live so long as the sleepy and stupid ; but if they hold out till the Eruptions push plentifully, and then the Phrenzy abates, they may more probably recover than the sleepy with a moderate Fever.

In Turkey neither Air nor Diet produce the Plague, though both contribute very much to it's Progress and Violence, when brought from any other infected Place. It generally rages most in August and September, when the Diet of the poorest Inhabitants, who suffer most by the Plague, consists of unripe Fruits, as Cucumbers, Gourds, Melons, Grapes, &c.

The Plague breaks out here and at Smyrna some Years, when there is no tracing from whence it is conveyed. Most likely from Houses before infected, and not well cleaned afterwards: But Plagues of this Kind seldom spread, and are never so fatal as those which come from abroad.

As to the Cure of this Disease, some are for bleeding ; though in this Country it is reckoned infallible Death to open a Vein, and Phlebotomy is never used. But I am of Opinion, that a Medium between these might prove more to the Purpose ; for, as it is an inflammatory Disease, Bleeding and Emetics might be of Use in the Beginning, especially if the Fever is very hot, with a Delirium or violent Head-ach ; but after there begins a Separation of the morbid Matter, shewn by Eruptions, Bleeding and Purging must prove prejudicial ; yet, gentle Vomits might, even then, be allowed, as they might drive out the Eruptions more powerfully than Nature could do it without their Help. As the pestilential Fever has many Remissions,

missions, I judge that the Use of the Bark might be of great Service, and so it proved to be, Anno 1752. to the French Ambassador's Servant, to whom I sent it, with Directions, by *Padré Josephé*; and he alone recovered of all who were taken ill in that Village.

The Practice in the Hospital is thus: When a Person is suspected, they give him a large Dose of Brandy, with a Dram of Venice Treacle, covering him well that he may sweat. The first three Days he eats nothing but Vermicelli boiled in Water, with a little Lemon Juice. On the fourth he has Rice and Water; which Diet they observe strictly to the fifteenth or twentieth Day, and then they allow him very thin Chicken Broth; his whole Drink, from first to last, is only warm Water.

They apply first to the Buboes and Parotids a Pultice of Mallows and Hogs-lard; and after they are ripe and open, they dress with *Unguent. Basilic.* To the Carbuncles they apply Carmac and Sugar for some Days, to cool them; when they begin to separate they apply a Digestive of thin Turpentine with the Yolk of an Egg. They put nothing to the Blains or petechial Spots. They give no other Medicine, except a little Bezoar to the Rich; nor can they be persuaded to change their Method.

I think Antiphlogistics should be used before the Eruptions, and Alexipharmics and Antiseptics afterwards, more particularly Camphire, and some Doses of the Bark in the Remissions; and Blisters must be of great Use to the stupid and sleepy.

I hold the best Preservative to be removing from infected Persons Houses, and to keep at a Distance from them for many Days.

Some think that Fire preserves from the Plague, from whom I differ; having observed that Cooks, &c. who are always near the Fire, suffer the most. Fire gives Energy to the Effluvia lodged about them, which otherwise might dissipate in the Air; and as hot Weather propagates the Plague, Fire should do the same, more or less.

The next best Preservative I take to be Moderation, and Food of easy Digestion, of a balsamic Quality, fit to produce rich generous Blood: Likewise to guard against all dismal Thoughts and Apprehensions.

MACKENZIE.

Of FEBRILE INFECTION. To come in immediately before the Article of the MEASLES. Vol. I. Page 129.

THE Words *Infection* and *Contagion* are too commonly understood under the alarming Notion of a Plague, a pestilential or malignant Fever. But those Terms are here used in no such limited Sense, though with an extensive Meaning to all Fevers, of whatever Kind, that are imparted from one Person to another, either by a near Approach to each other, or by Means of such Substances, as have imbibed Particles by which a Fever may be communicated and spread.

It is necessary also to obviate another vulgar Error that prevails.—Nothing is more common than to hear a Fever, or other Distemper, pronounced to be free from any infectious Disposition, and the Attack of it upon a few attributed to very different Causes; because the Person himself who judges in this Manner, has had the good Fortune to escape, as some others may have done, who were equally exposed to the Infection.

As there is no Remedy, though the most Sovereign in the World, which does not sometimes fail of Success, even in Cases where, seemingly, it is well adapted; so there is no Contagion, so far as I think, yet known, that does affect all Mankind indiscriminately. Inoculation for the Small-pox sometimes fails to produce that Disease, and yet no one questions it's being contagious. I never found in myself the least Symptom of an Infection, though for several Years I have daily attended People labouring under contagious Maladies. It does not thence follow, that the Hospital Fevers during those Times were not infectious, as there are the most positive Proofs of the contrary.

An infectious Malady is not, therefore, always a Calamity which spreads itself to every Person that approaches; the Plague itself is not altogether of such a Nature. Is it not therefore, a Distemper, which, in certain Circumstances, is, or may be, communicated to one, two, or more Persons, and that for the most Part, in it's identical Form, and peculiar Nature, which must be suitable to the Habits and Dispositions of the Persons who receive it? What these Dispositions are is not the Question at present. It may suffice, that I illustrate and confirm my Meaning by a late Incident.

In a Word, where there were eighteen Marines, five of them were seized with a severe Flux, being infected by two Seamen who were warded with them. Among 592 Patients, then

then in the House, there was nowhere heard this Complaint, but in that Ward. The five Marines became, themselves, sensible how they got the Distemper, though thirteen in a parallel Situation, were never in the least affected by it.

In acute Ailments, we judge the Stools, more especially if very foetid, to be the most communicative of a Taint; next to those the Breath, and lastly, the Effluvia from Patients in Fevers.

As to the Method of treating a Person who has received this Infection from a Fever, the Manner ought to be altogether familiar, whether the Infection be acquired from a slighter or a more virulent Taint; and that it should be practised also in all Cases of Relapses.

The Effect of Contagion is often sudden, and, at the same Time, sensible. The slightest Degree is from the bad Smell of Patients labouring under offensive Diseases. Such slight Degrees of Infection I have often observed to be derived from Patients of a gross Habit of Body, when labouring under inflammatory Distempers, and even other Complaints.

Some have received such an Infection from assisting in putting dead Bodies into the Coffins; and likewise Nurses by Persons in the Small-pox. Shiverings, Sicknes, and Head-ach are the usual proclaiming Symptoms: Vomits and Blisters soon reinstate them; seldom one proving mortal where the Patient was properly treated.

Those infected by Patients in contagious Fevers, generally compare the first Impression to an earthy disagreeable Scent, received into the Stomach, as from a Grave newly opened, but not quite so raw as the cadaverous Stench; the Effects of which, Shivering and Sicknes, are instantaneous. This is a particular Smell, hardly to be described: Some compare it to that of rotten Straw; others to the disagreeable affecting Scent from the confluent Small-pox at their Turn, though it is not so strong.

But many are not sensible of any Effects from this Poison at first. An Infection from a Fever will sometimes continue about a Person for many Days, nay Weeks, discovering itself chiefly by irregular Shiverings, and those some Times so severe, as to oblige the Patients to have Recourse to their Beds once a Day; sometimes every other Day.

It is also found, that in Fevers thus contracted, the Patients are very subject to Relapses: In an infected Place, whether House, Chamber, or Ship, where the Seeds of Contagion are harboured, frequent Relapses into Fevers, even to the sixth

or

or Seventh Time, are not unusual, and may be justly ascribed to the Influence of the Contagion.

Qu. Do not these same Causes, which occasion Relapses, sometimes give Motion to the morbific Effluvia, before received into the Body, and enable them to produce such Effects, as otherwise probably might not have appeared ? I am the rather of this Opinion, because, as I said before, the Effects of the communicated Mischief from bad Fevers are often very quick, and sensible to some, immediately at the Time the Poison is received. But if a Person perceives no Symptom of an Infection, till many Days after having left the Place of it's Abode, and is first taken ill of it immediately after having been wet with Rain, exposed to Cold or Damp, or been guilty of Intemperance and Excesses, it is probable, that these Causes have excited this dormant Poison into Action ; and none can positively affirm, that without their Influence it would have ever affected the Constitution.

The Coldness felt, at first, over the Body, the Shiverings, with slight Sickness at the Stomach, tend to confirm the mistaken Opinion, that these are only the common Symptoms of a Cold, or sudden Chill, or what the Vulgar term an Ague : yet, this is the critical Time for the Advice of a Physician, as improper Treatment, or the Delay of a few Hours, may produce Effects beyond the Power of Medicine to remove.

To all who are supposed to be infected by Fevers, during this State of Rigors, a gentle Vomit is immediately to be exhibited, before the Fever be formed, and before the Fulness or Hardness of the Pulse renders it's Operation dangerous. If the Vomit be delayed too long, and especially if bleeding must precede it, the most certain and favourable Opportunity of procuring Safety for the Patient is past.

The Effects of this Antidote are so well known, and have been so fully ascertained by repeated Experience, that those who are employed in Fever Wards, as soon as taken sick, have immediate Recourse thereto. I have found it equally serviceable in preventing Relapses, when given immediately at the Return of the Shiverings. I should add, that a loose Stool or two should at this Time be procured, either by the Emetic or Clysters.

The Vomit may generally be very gentle, seldom exceeding from six to ten Grains of *Ipecacoanah*. The Patient should afterwards, when put to bed, take a sweating and quieting Draught, containing five Grains of *Sal C. C.* and from fifteen to twenty Drops of *Tinct. Theb.* Sometimes five Grains of *Camphire*

Camphire have been given every four Hours, with large Draughts of Vinegar-Whey.

But if the Head next Morning be not altogether free from Pain, or the Fever is still to be apprehended, something more must be done.

It should always be remembered, in Cases of Infection, to pursue the most quick and vigorous Methods possible; as in the first Hours, and afterwards Days, of this Fever, less must be trusted to Nature, than in any other Distemper. At this Period, no Confidence should be put in Alexipharmic, or sweating Medicines; *Mithridate, Theriaca, &c.* never to be used in Cases of imminent Danger, till after proper Evacuations.

If the aforesaid Symptoms of a Fever remain after the Administration of the Vomit, Clysters, &c. or should the Exhibition of an Emetic have been altogether neglected, or too long delayed; or the Patient injudiciously treated with sweating Medicines, and bleeding, where the Proof of Infection is evident, Recourse must be speedily had to Blisters, to be applied to the Back, if the Head or Limbs are affected, and to the Breast, should the malady have seized that Part.

I do not know a surer Mark of a prevailing infectious Fever, than this: If twenty Patients to whom it has been communicated, be blistered at night, about sixteen of them shall next morning be entirely free from Heat. This, however, is meant only of such Infections whose Source is not highly poisonous; nor can I affirm that such salutary Effects will always be produced while the Patient continues in an infected Place, or within the Sphere of it's Activity.

How far those Means would operate towards the expelling the Small-pox Venom as soon as admitted, or, perhaps, in some other infectious Fevers, that have not occurred in my Practice, I do not know: But this I will venture to assert, that in the worst Infections I ever was witness to, the Method prescribed has had better Effects, than any Manner of Treatment recommended by the Authors I have read on this Subject, or any that I have had Opportunity of trying myself: And in Relapses, where I have had the most frequent Cases for a fair Trial, I have been fully satisfied of it's beneficial Effects.

Much has been said against the promiscuous Use of Blisters, and their early Application in Fevers: And indeed, in Fevers truly inflammatory, and some other Cases, I have known bad Effects proceed from them.—But, what I and others have fre-

quently reflected on with Astonishment, very seldom in Ship Fevers, there is felt such a State of the Pulse as to forbid their Use. What some mechanical Writers in Physic have advanced concerning the Theory of blistering Applications, or their acting as *stimuli*, and so always raising and encreasing the Fever, is not applicable to the most of those Fevers of which I treat, where, according to the Nurse's Phrase, the Patient generally receives a *Cool* from the Blister.

When the Infection, by these Means, has been removed twenty-four or thirty-six Hours after the Application of the Blisters, the intestinal Canal should a second Time be gently cleansed, by giving Rhubarb, with a small Quantity of vitriolated Tartar.

I have remarked already, that some Persons who have once been infected, though they were speedily relieved by a Vomit and blistering, yet afterwards became, for some Time, sickly, and afflicted with irregular Complaints. This happened chiefly in weak Constitutions, to hysterical Women, and in very malignant Taints.

As to the Appearances after Death, in such as have died of contagious Fevers; — in the few I have opened, very large Collections of *Matter* were generally found in some Parts of the Body.

I conjecture, that the great and experienced Benefit derived from the very early Application of Blisters, flows from so many Ulcerations and Vesicles being timely provided for the complete Discharge of those purulent and tainted Particles, by which they and the Infection are freely discharged from the Body.

It is an Observation of the best practical Writers, that Issues and Setons are most excellent Preservatives against receiving an Infection; nay, even that of the Plague itself: And the most hopeful Crisis in the Plague, and in most pestilential Fevers, happens when Nature excites Tumors kindly suppurating, by whose beneficial and plentiful Discharges, the deadly Poison is expelled from the Constitution.

Infection, this dreadful Source of Disease, is not confined to Armies or Fleets, in Ships or in Prisons; but it elsewhere, in Places often unsuspected, exerts it's malignant Influences.

When a Nurse, or when two or three Persons in the same Family, are seized with a similar Fever; Cold, Fatigue, or Grief are solely blamed, or the like Causes, which strongly dispose the Constitution to receive and animate the Taint; when such Diseases (as I have known) attack a Boarding-school

school of Boys or Girls, the fatal Distress is often ascribed to Causes which are not in the least accessary.

When Spots are observed to rise above the Surface of the Skin, the Fever, by some, may be supposed Miliary, and free from any Danger of being communicated.—But, in contagious Fevers, those elevated Spots are very common. In the malignant Fever which prevailed among the French Prisoners in Winchester Castle, where the Contagion was very mortal in the Beginning of the Year 1761. I remarked the Spots were, on most of the Patients, elevated, and of the miliary Kind.

I have thus offered a few Thoughts on a Subject, which it is to be wished was more universally studied and known. The Particles of Contagion are, for the most Part, of so subtile a Nature, as seldom to fall under the Inspection of our Senses ; whence in this, as in other Subjects so abstruse, there is a large Field open for Dissentions. Men, indeed, of the greatest Learning have frequently disagreed in their Opinions concerning the real or possible Existence of an Infection from many Distempers ; of which the *Yellow Fever* in the West-Indies furnishes a striking Instance. Not many Years since, this Fever became an Object of Consideration before the Lords Commissioners of Trade and Plantation ; where it was urged, as a Reason for not removing the Seat of Government and Justice in Jamaica, from Spanish Town to Kingston, that there was Danger from the Greenwich Hospital, situated near Kingston, of an Infection from the Yellow Fever being frequently communicated to that Town. The Opinion of a Physician was taken, who had long practised in that Island ; and by him it was judicially and clearly given, that, from the Yellow Fever in *Jamaica*, there was no Infection ; and the same was likewise the Opinion of other skilful Physicians.

On the other Hand, our *American Colonies* are under great Apprehensions of the Importation of a Yellow Fever, in Goods and Ships from the West Indies ; by which they have often suffered.—And it is but a few Years since, when a Gentleman dying of a Yellow Fever at Barbadoes, his Wearing Apparel and Linen, packed up in a Chest, were sent to his Friends at Philadelphia ; where, upon opening the Chest, the Family was taken ill ; and the Cloaths being hung abroad to be aired, they presently diffused the Contagion of this Yellow Fever over that Town, of which two hundred Persons died.

The vulgar Appellations given to Fevers do sometimes disclose to us very little of their Nature and true Disposition ; and thus much is certain, that from the same Infection, I have known to proceed what might be termed, the *Yellow, Petechial, and*

and Miliary Fevers ; and while the Contagion, in a few, assumed an intermitting Form, and was mild, in others it raged with a constant Fever.

Many Countries and Cities, in all human Probability, might have escaped the dreadful Scourge of the Pestilence by taking, on its first and most early Appearance, the proper Measures of separating the Sick from the suspected, though in Health ; and shutting both separately up, with proper Officers and necessary Attendants, from all others ; and carefully tracing the imported or generated Poison, wherever lodged, that the infectious Atoms might be effectually destroyed, by the judicious Application of Fire and Smoke. But the Incredulity of some has been so great as to deny a Contagion to be in the Plague itself at its first breaking forth ; because no Marks of Contagion were found on the dead Bodies. However, that this has proved a fatal Mistake, is well known to such as are conversant with the Histories of the different Plagues in Europe.

The Phænomena, even in the most manifest Contagion, are often wonderfully mysterious, and altogether unaccountable. Thus the Small-pox has been for Ages, and continues to be, the Terror and Destroyer of a great Part of Mankind : But from what Origin, or how, was this Poison first engendered ? The Europeans have carried it to almost all Parts of the World, though not a Marine might have been infected with it in a whole Voyage. This Venom has been conveyed in an old Blanket to Nations of Indians, some of whom it has almost extirpated.

Further, the specific Nature and Qualities of such Poisons are likewise various from each other, and in many Respects inscrutable. How far does each extend its proper Sphere of Activity ? Who will undertake to assign an irrefragable, or a plain Reason, why the Small-pox will infect Persons but once during the period of their Lives ; while the Plague, and other Infections, attack the Constitution again and again ? There are unquestionably Limits prescribed to human Researches, beyond which, though Fancy may take its Flight, and Theory make wide Excursions, all is Conjecture, Obscurity, or profound Darkness.

LIND.

To come in at the End of the Article of the SMALL-POX.
Vol. I. Page 146.

THE Custom or Practice of transplanting the Small-pox ~~T~~ from the Body of an infected Person, so that of one in Health, commonly called *Inoculation*, has gradually prevailed in this Nation for about five and forty Years.

It having been found from innumberable Observations thro' many Ages, that, in the ordinary Course and Duration of human Life, scarce one in a thousand escapes the Small-pox ; and that it never returns a second Time upon any one : It at length became a Matter of Consideration, whether this Disease, being manifestly contagious, might not deposit, in its maturated Pustules, such Seeds of Contagion as might be artificially introduced through the Skin into the Blood and Humours of a sound Person, so as to excite the Disorder.

But it seems not a little extraordinary, that this should happen to be the Invention of a People of *Asia*, in a Manner utterly ignorant of the Practice of Physic, the *Circassians*, who, about a Century ago, having used it with Success in their own Country, brought it, in Time, into Turkey, as we are assured both by *Timoni* and *Pylarini*, Physicians of great Eminence, who resided there many Years, and saw it practised with amazing Success and Safety at Constantinople and Smyrna, on great Numbers of Greeks, Armenians and Jews ; though the Turks themselves, from the high Notion they entertain of Fatality and Predestination, could never be reconciled to it. It must indeed be allowed that the Thing did not require any extraordinary Skill either in Physic or Surgery ; as it was found sufficient to make a small Puncture or Incision, in any Part of the Body, and rub into it some of the variolus Matter squeezed out of the ripe Pustules of a Person that had the Small-pox upon him ; and their Women were generally the Operators.

Our modern Method, is to make a slight Incision in the muscular Part of the Arm, and to bind on upon it a small Pledgit of Lint dipt in the purulent Matter, which very seldom fails of the proposed End.

The Missionaries to China assure, that a similar Method of exciting the Small-pox has been in Use in that Country above a hundred Years, and that the Manner of conducting it is thus : They collect a certain Quantity of the dry fallen Pustules, which they keep in a small Porcelain Bottle well stopped with Wax, and when they intend to give a Person the Small-pox, they mix a single Grain of Musk with three or four of these

these Pellicles, and roll them up in a Bit of Cotton, which they thrust up one of his Nostrils. This, however, seems to be a more dangerous Way of communicating the Infection, than that of the Circassians; as the Brain may be violently injured by the morbid Particles drawn in with the Breath, and immediately affecting the olfactory Nerves. This *Mead* found to be actually the Case from Experiment: For in the Year 1721, the King having, for the Public Benefit, assented that a Tryal should be made whether the Small-pox might be inoculated with Safety, the Operation was performed on six condemned Criminals, in the usual Way; and a seventh, a Girl of Eighteen, was treated in the Chinese Way. They all contracted the Distemper and recovered; but the young Woman laboured under far severer Symptoms than any of the rest: No sooner was the Venom conveyed into her Nostrils, than she was seized with most acute Pains of the Head, a very intense Fever, which never in the least abated before the Time of the Eruption.

From this Period Inoculation began, and continued to make a rapid Progress with us; all Accounts confirming that it produced a far milder Sort of Small-pox than that for the most Part proved to be which was contracted in the natural Way. For, upon comparing the Accounts kept by those who have most frequently practised Inoculation, it manifestly appears that scarce one of a Hundred miscarries, whereas a fifth or a sixth Part die of the natural Small-pox.

Moreover the following Narrative from the Island of St. Christopher is a strong Confirmation of the Safety with which the Small-pox may be communicated by Inoculation. A wealthy Planter there, who employed a great Number of Hands in the Sugar Manufactory, did, in one Year, when the Small-pox raged violently in those Parts, himself inoculate no less than three hundred of them, of all Ages from five to thirty; and that with so happy Success, that not one miscarried, though the greater Part of them were Negroes: It is remarkable, that though in this Disease the Symptoms prove very severe to the Americans in general, yet Experience evinces that the Africans are in a much more dangerous Situation under it.

Doctor *Hadow* of Warwick has practised Inoculation these 27 Years with most happy Success. The 14th of October, 1738, he began with two Boys, and from that Time to April 22, 1765, he inoculated in all 2143 Persons, of which Operation only three Children died; and he gives the following Account of their Deaths: "A little Infant died of a

too large Dose of Opium given by the Apothecary or his Apprentice by mistake: Another whom I inoculated in July 1759, died in very hot Weather; he could never be made to take any thing. At the same Time I inoculated a great Number of others without any Accident. A little Girl six Years old died in the Winter. The third Day after the Eruption, which was very moderate, an Artery burst in her Nose near the Throat; the Blood flowed out in Abundance both at the Nose and Mouth, and she was past all Remedy before I could come to her Assistance, being then almost dead."

Now Facts being thus constituted, let us next take a View of the Objections which have, or may be, brought against this Practice. And in the first Place there are some who pretend that the Eruptions which ensue from Inoculation, are not the true Pustules of the Small-pox; and that therefore no one can be secured against a future Attack of this Malady by such an Experiment. These People take an infinite deal of Pains to produce Instances of those who after having contracted a Distemper by Inoculation, had nevertheless the Small-pox afterwards in the natural Way. But is it possible to conceive, that a contagious Substance, the very seminal Matter of the Small-pox, should propagate, instead of its own, another Disease of a quite different Kind? It must needs be a Thing of little Importance which Way the Contagion be received, provided it exhibits the manifest Tokens of the Distemper. As to such who having gone thro' the Small-pox artificially excited, are reported to have been afflicted with it again; *Mead* never could, on the most strict Enquiry, meet with a single Proof of any such Thing. He had heard again and again a Narrative of a Boy, cooked up a certain Author, who three Years after having the Small-pox from Inoculation, had it again by Infection; but he was satisfied of the insufficiency of this Testimony, as several of the Family affirmed that no Small-pox at all appeared in Consequence of the Inoculation. Admitting, after all, such an Event to have once happened, how comes it to pass that we never had any more Instances of the Kind? And how far may we justly reckon upon a simple Example, admitting it to be incontestibly true; when we see that in almost innumerable Experiments of the same Sort, nothing of the like Nature has been taken notice of?

These Objectors would farther insinuate, the Dread left, together with the Small-pox, some other contagious Malady inherents in the Humours of a sick Person may be transplanted into the Body of one in Health, considering the subtle Nature and Activity of all contagious Venoms. Nor does it indeed

seem

seem disconsonant to Reason, that some Malady, besides cutaneous ones, may be introduced through the Skin.—Yet it is hardly credible it should ever so fall out, that the seminal Matter of one Disease, should prove to be the Vehicle of the like Matter of another Disease of a very different Nature. But this as it may ; he must be accounted a most indiscreet Physician, who should extract from any morbid Body indiscriminately, the purulent Matter he intends to introduce into a sound Body. Infants and Children, healthy in every other Respect, and likewise of sound Parents, should be made Choice of for this Purpose. And furthermore it seems a Matter of more Consequence, into what kind of Body this Virus is to be infused, than from what Body it is derived : This Hint is given, because it is well known that some Surgeons have too incautiously inoculated Children weak, or of a bad Habit of Body, and by so doing were frustrated as to the happy Success they promised themselves. And lastly it is of the utmost Consequence that a Physician should be extreamly careful not to convey a new Contagion into the Blood of a Person already infected. Such is known to have been once the Case, if not oftner ; wherein Nature sunk under the Weight of a double Disease, which in all Probability she might have vanquished, had it been but a single one *.

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* A new Set of Opponents to Inoculation has lately arisen out of the Gentlemen of the Faculty of Physic at Paris, whose Opinion as to the Merits of Inoculation had been required by the Parliament in their Arret of June 8, 1763. In Consequence of which a Committee of six Regent Doctors were appointed to examine into Facts, and make a faithful Report of the Result. Their Report, drawn up by Doctor *de l'Epine*, and signed by all the six Comissaries, has been printed at Paris in 4to under the following Title.

Rapport sur le Faite de l'Inoculation, de la petite Verote, lù en presence de la Faculté de Medicine de Paris, et imprimé par son Ordre pour être communiqué à tous les Docteurs, avant qu'elle donne sur cette Question l'Avis que le Parlement lui demande par son Arrêt de l'8 Juin 1763.

This Piece is very singularly remarkable both for false Reasoning and Calculation. Almost every Objection therein alledged against the Practice of Inoculation, has been already weighed and refuted ten Times over ; in support of which, the Comissaries cite a great Number of Facts, the greatest Part of which prove nothing at all ; some of them require a further Examination, and the rest are either altered

or

The main Reasons to be offered why this Disease is less dangerous, excited by Inoculation, than when it naturally supervenes

or disguised; which has been already proved in several Instances, and, it is expected, will be in many more.

The Chevalier *de la Condamine*, of the Royal Academy of Sciences, a zealous Champion for Inoculation, on this Occasion has addressed a Letter to the Editors of the *Gazette Litteraire de l'Europe*, whereof the following is an Extract.

I will take upon me to affirm, that of the 125 Pages contained in this Report, there is not one but what is liable to Contractions supported by Proofs. Permit me, at this Time, to lay before you an Example of a scandalous abuse of Logic.

By authentic Lists published at London, there had been taken into the Small-pox Hospital March 24, 1763, nearly ten Thousand Persons, two Thirds of which took the Distemper naturally, and the rest received by it Inoculation. Of the former one in four died; of the latter but one in all. Now, would any one imagine, that from hence an Argument could be drawn against Inoculation? Yet observe how these Anti-Inoculists Reason; 'tis a very Master-piece. "We acknowledge (say they) that, according to the List, "one fourth of those who sickened of the natural Small-pox "died; and of the 243 who were inoculated, only one died: But "add together the Numbers of those who died of both the Sorts "of Small-pox, the natural and the artificial, and you will find "that this Number makes a sixth Part of the Whole. This taken "for granted, we reason thus: Before Inoculation came in Practice, there died no more than one seventh of those who were "seized with the Small-pox in England; at present one sixth die: "Therefore Inoculation is a Loss of Subjects to the State." This is the very Substance of the Reasoning of the Anti-inoculist Commissaries, contained in the 65th and 66th Pages of their Report.

1st, The Major of this pretended Syllogism is false. Doctor *Jurin*, whom they have misquoted, found, by his own Account, no less than one sixth; the Bishop of Worcester says, vaguely, at least one seventh, with this Restriction, *upon a moderate Computation*.

2d, The Minor is not true, but with Regard to the London Hospital; and there only by Chance; so that generally taken, as advanced in the Report, it is false.

3d, The Major and the Minor being false, the Conclusion inferred from them, *Therefore Inoculation is a Loss of Subjects to the State*, cannot be allowed as a Consequence.

But, farther to shew forth the Absurdity of this pretended Argument—We have seen that out of ten thousand Persons admitted into the London Hospital, two Thirds had the natural Small-pox: Let us suppose, instead of one fourth that died, they had all died without Exception; and that if the other one Third that

venes, are these: The Virus may be inserted into a Child or Youth of a hale Constitution: And then, by taking away a small Quantity of Blood, if the Temparament seems to indicate it, and by purging the Humours with some gentle Cathartic, as *Magnesia alba*, there will be a Provision made against the Violence of the future Fever. Secondly, during the whole Interval the Contagion is operating, to the Eruption of the variolous Pustules, being commonly seven or eight Days, or nine at the most; Quietude and a moderate Diet may be enjoined, with a proper Regimen in other Matters; whereas many, through violent Exercise or Excess in Drinking, after the Infection has taken Place in the natural Way, are hurried into grievous Fevers, with an Aggravation of all the other Symptoms, so as greatly to endanger and often to deprive them of their Lives. Thirdly, the Small-pox produced by Inoculation is, for the Generality, of so mild a Kind, as hardly to require any Assistance from a Physician: But should it prove otherwise, as it must be acknowledged it sometimes does, the same Treatment must be pursued, as it is proper in the different Degrees of this Disease. See Vol. I. p. 136, &c.

Some have been of Opinion, that the Efflux of the Humour, from the Incision that received the contagious Matter, and also the Pustules breaking out around the Wound, may contribute to the Benefit of the Patient; but the Quantity carried off this Way, is too inconsiderable, to produce any real Consequence. Much more might be expected from blif-

were inoculated, not one had died: And on this Supposition, let us pursue the Argument opposed against us, namely this—Formerly there died one seventh of the Sick of the Small-pox; and out of the ten thousand Patients of this Hospital, two thirds have died since Inoculation came in Vogue: Therefore that Operation has more than quadrupled the Number of the Dead; therefore it is pernicious, &c.

Such is the Force of this marvelous Objection! that in Proportion to the Increase on the one Part, of the Number of those dead of the natural Small-pox, and the Decrease on the other, of the Number of the Dead of the inoculated, it appears that Inoculation turns out the most dangerous. Such is the Objection adopted by five worthy Doctors of the Faculty of Paris, appointed Commissaries for examining into the Merits or Demerits of Inoculation; and this is what they expose to the Examination of all Europe. Now, in the Name of all Europe, I call upon them to answer, if they do believe their Argument to be a good one, or if they will acknowledge it to be no better than a Heap of Sophisims? I say, five, not six, because I except Doctor *Macquart* who, though he signed the Report, did afterward, on the fifth of last September, deliver his Opinion in favour of Inoculation.

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tering Plaisters laid upon the Arms and Legs, and encouraging the Digestion of the purulent Matter in the Sores, through the whole Course of the Distemper.

Lastly, it should be remarked, that in the Small-pox brought on by Inoculation, Boils and Parotids, or Tumours under the Ears, and in other Parts, are more apt to be formed, than in the natural Small-pox. When these appear, all proper Means should be employed to promote their Maturation so as that they may break of themselves: But if they should not, they must be opened by Incision; and when all the purulent Matter is squeezed out, and after they have been frequently and sufficiently dressed in the usual Way, the Patient must be thoroughly purged.



To come in at the End of the Article of PLEURISY. Vol. I.
Page 196.

A Cough is almost a perpetual Attendant on a Pleurisy; and since Expectoration is of the utmost Consequence, and frequently terminates the Disease, it behoves every skilful Physician, in the beginning of a Pleurisy, ever to observe whether the Cough be attended with a Spitting, and of what Kind it is: For a dry Plurisy is by all condemned as the most dangerous, troublesome to treat, and difficult to bring to a Concoction or Crisis; it either carrying off the Patient with great Rapidity, or continuing for a very considerable Time: Even a Spitting intermixed with Blood, in this Case, is far better than where there is no Expectoration at all.

It is an Observation of the learned *Triller*, that a Pleurisy which attacks the right Side, is not so dangerous, stubborn or inveterate, as when the left Side is affected, which proves often fatal on the third or fourth Day, especially to Persons who are very hard Drinkers.

An original Pleurisy, generally requires copious and repeated bleeding: The symptomatical, or that which happens in consequence of other epidemic Diseases, will not bear it so well, at least no Repetitions of it.

Pleuresies are seldom more severe, or more suddenly fatal, than when they happen upon excessive and sudden drinking of cold Liquors when the Body has been much heated. The Blood of a healthy Person, drawn into a Vessel of cold Water, instantly concretes into Threads of an almost solid Consistency. Now when Plenty of cold Drink is swallowed down

the **Œsophagus**, which descends in its Course very near the Trunks of the intercostal Arteries, it becomes filled or distended with it ; the whole Stomach, in like Manner, being charged with the cold Drink, instantly imparts the unusual Coldness thereof to the adjacent Diaphragm, Liver, Spleen, &c. The Trunk of the ascending Cava, and the large right Sinus of the Heart, incumbent on the thin tendinous Part of the Diaphragm, are likewise affected, by disposing the Blood there collected, to a Concretion, impede its proper Passage through the Lungs.

The Breathing is greatly injured, because at the Time of Inspiration, the Ribs must, of Necessity, be drawn from each other ; and the inflamed and tense Parts be consequently stretched and extended, with a great increase of the Pain. Upon this Account, such miserable Patients hardly breathe Air sufficient to dilate the Lungs ; whereby the right Ventricle of the Heart becomes unable to empty itself so freely as it ought to do. The Blood, therefore, returning from the Head, by the jugular Veins, cannot now find any Admittance into the right Sinus and Auricle, already full ; whence the Brain is compressed by the turgid Vessels, and the Patient becomes dull, stupid, and less sensible of Pain ; and whilst the Lungs are gradually more and more overcharged with Blood, he soon expires, suffocated. And it is very worthy of Remark, that Pleuritics perish in the Height of the Distemper, not from the Inflammation of the Pleura, nor of the Parts contiguous to, or incumbent on, the Ribs ; but are suffocated by a Repletion or Oppilation of the Lungs, for want of a due Respiration.

It is to be observed, that when a Pleuresy has continued three or four Days, without having had any necessary Assistance, it seldom or never is cured by any innocent or mild Resolution : For then the Violence of the Disease usually gives Rise to Maladies in other Parts ; and more especially in the Lungs.

Triller has very justly observed, that Pleuretic Patients generally escape by the Help of Nature, often even without Bleeding, provided a copious Flux of florid or purple Blood from the Nose, happens between the *first and the fifth Day*. And *Hippocrates* pronounces, that *Urine of a slight reddish Colour, and a modern Sediment, denotes a sure and safe Crisis in Pleuries*. If such a Urine flows plentifully, and deposits such a Sediment, with Relief of all the Symptoms, we are then sure the morbid Matter is discharging itself ; and we have more especially Hopes, that the Disease will terminate that Way ; if this happens in the Beginning, before any of the Humours become vitiated by a long Continuance of the Distemper : For, if this of Urine is voided

voided towards the Close of the Disease, it will very rarely be removed by that Discharge only.

If the Pain invades the Back, Shoulders, or Arm, and evidently abates in the Pleuretic Side, it is a very happy Sign; such Patients generally recovering, which is very remarkable. *These Translations happen oftener upon the sixth Day of the Disease.* — This Metastasis, however, does not appear to cure the Disease, but is rather a Forerunner of a salutary Crisis.

A white, concreted, or Pus-like Expectoration, has been often known to cure a Pleuresy.

Expectorations of a yellow Colour, intermixed with Blood, are salutary. *Hippocrates has recorded those Pleuresies to be of the mildest Kind, in which the Spitting is somewhat bloody.* In this Case, however, Bleeding is to be forbidden, which would suppress this Expectoration, and kill the Patient.

In a violent Pleuresy, although by a happy Treatment, the Matter of the Distemper may be dissolved, and rendered fluxile; it hardly ever happens, that this Matter can be again assimilated with the healthy Juices, so as to circulate with them freely, and without Injury to the vascular System, which it almost constantly stimulates to such a Degree, as to force it to throw the same off by some Out-let or another, in a sensible Discharge from the Body. This Caution is very necessary, lest any one should hesitate to order Bleeding in the Beginning of a Pleuresy, thinking it might hinder the salutary Endeavours of Nature, to expel the morbid Matter.

It sometimes happens, in a Pleuresy, that the Breast can, by no Means, be dilated or moved, on Account of the Violence of the Pain, whence the Lungs transmit but very little Blood; for which Reason, the large Veins are very full and turgid, but the Aorta, receiving only a little Blood, does not press forward that which is contained in the Veins with any great Force; so that upon opening a Vein, there often issues out but a small Quantity of Blood: But as soon as the Patient expands them by Sighing, or shocks them by Coughing, the Blood issues forth with Impetuosity. *Tulpius therefore advises Physicians, in such Cases, to persuade their Patients to cough:* But, as the Pain is often so severe, that the least Dilatation of the Breast, throws them into Convulsions, it is not an easy Matter to prevail on them to do it.—Under such Circumstances, it will be expedient to give some Sternutatory, or a Spoonful of hot Vinegar, whereby an involuntary Cough may be excited, which may suddenly remove the Pain, or greatly abate it at least.

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We should be cautious not to bleed to fainting, lest a Peripneumony should follow; for when the Heart, in a Deliquium, ceases to move, the Blood in the right Sinus, Auricle, and Ventricle, often stagnates for some little Time, and being in this inflammatory Malady, greatly inclined to inspissate and concrete, it will, in some Degree, enter before the Patient can be recovered from his fainting Fit; and may therefore adhere, and be unable to pass the smaller Vessels of the Lungs through which it should circulate, and so be productive of a Peripneumony, which would be of much more dangerous Consequence than the Pleuresy itself.

Triller gives a Case, to prove how effectual Bleeding may be, even when the Patient is extremely weak, and all the Symptoms are, notwithstanding, aggravated to a Degree of Violence. In a robust Youth, under a most severe Pleuresy, after two plentiful Bleedings, the Disease seemed to change for the better; but on the fifth Day, the Symptoms returned with great Violence, so that, in spite of Clysters and Vesicators, the Patient seemed to be in the most imminent Danger. A large Orifice was made in the Veins of both Feet, now grown so cold, that though they were fomented with warm water, not a Drop of Blood came; upon which water was continued to be poured upon them, so hot as to fetch off the Cuticle, and then the Veins bled plentifully enough, and so effectually, that the Patient, almost half expiring, revived, and was most happily cured.

Sydenham bled his pleuritic Patients, as soon as he was called to them, from the Arm of the affected Side; but when he afterwards repeated the Venesection, he makes no mention of the Part from which the Blood was taken. *Hildanus* observes, that he seldom or never found the desired Success from Bleeding in the Arm opposite to the Pleurisy; and *Triller* confirms this also, as to the first Bleeding; for the second, he rather prefers the Foot of the same Side; and then in the opposite Foot, if there should be a Necessity for a third or fourth Bleeding; but he very justly remarks, that the first Bleeding should be of all the most copious.

In this Case, a Solution of Venice Soap, in equal Parts of warm Water and new Milk, has been found a comfortable Fomentation; or half an Ounce of Soap to a Pint of the *Emollient Decoction*, in which Flannels were dipped and laid upon the Side, and hot Tiles placed over to keep the Fomentation from cooling too soon. In the Night-time, that the Fomentations may not be troublesome, the Side may be first rubbed with *Ung. de Althaea*, and then covered with a Melilot Plaister.

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A simple Decoction of Barley, with Oxymel and Nitre, is often sufficient here, since this includes all the Qualities necessary towards a Cure; for it dilutes by being watery, relaxes and eases by the intermixed mealy Mucilage, while the Honey and Vinegar very well dissolve the inflammatory Size; as also does the Nitre, and abates the Heat.

These Patients should never be kept too hot, but be taken out of Bed a few Hours every Day, if their Strength will bear it; nor should they be over-loaded with Bed-cloaths. Copious Bleedings, and other cooling Remedies, will avail but little without this Precaution.

Lastly, great Prudence is necessary, in regulating the Diet of recovering Pleuritics; for too sudden a Repletion would endanger a fatal Relapse. VAN SWIETEN.



To come in at the End of the Article of the FRENCH POX, Vol. II.
Page 69.

M. GOULARD, now Surgeon Major of the military Hospital at Montpellier, has treated great Numbers of venereal Complaints with surprising Success, and that by the Way of Frictions. In 1760, he published a Work, which has been well received, intituled, *Practical Remarks and Observations on Venereal Diseases*. He proves Salivation to be not only useless, but that it is even mischievous in many Cases, especially when it is raised too high; whereas Frictions, managed with Discretion, secure the Patient against all dangerous Accidents. Baths, refreshing Broths, and a proper Regimen, are the Preparatives the Patients are to be enjoined, in order to receive one Friction every two Days. If any Accident supervenes in the Course of their Treatment, especially a Tumefaction of the Glands of the Mouth, the Sign of an approaching Salivation, which should be avoided, the Patients are removed from the Place where they received the Friction; and sometimes their Linen is changed; they are let blood, purged, or bathed, according to the Circumstances, and the Cure is resumed when every thing is calm. This Inconvenience seldom happens, through the Precaution taken; according as the Cases appear to require, to allow a sufficient Interval between the Frictions, so that they may not extend their Effect to the Mouth. Since that Time it has been customary, and that to very good Purpose, to join a Portion of Camphire with the mercurial Unguent; it having been found, that this will restrain the salivating Quality of the Mercury.

cury. The Dose is a Dram, sometimes a Dram and a Half, to an Ounce of Unguent, which many Practitioners direct to be made up with one third of Mercury, to three of the Lard.

The most zealous Advocates for salivating, cannot deny the Cures which have been performed, in the most difficult Cases, by bare mercurial Frictions, without procuring that Evacuation, which would have proved an Impediment to administering the necessary Quantity of Mercury at the proper Time. All they can pretend to is, that in ordinary Cases, Salivation serves them as a Compass to steer by, being an infallible Rule whereby to judge of the Action of the Mercury upon the Blood, and of the Intensity of its Effects: But it may, with far more Justice, be affirmed in general, that the more Mercury is introduced into the Body, under the necessary Precautions not to excite any Ravages, the greater will be the Certainty of the Cure; whereas a Salivation may impede or defeat it, either by causing the Mercury to escape too soon, or by rendering it necessary to suspend the Frictions, before the Patient has received a sufficient Quantity of that Mineral.

M. Kalm, after visiting many Parts of North America, relates, in the *Stockholm Aëls*, that the Savage Indians have, for a long Time, been acquainted with the Venereal Distemper. Some say they derived it from the Europeans; whilst others affirm, that it was known among them long before their Converse with any People of Europe. An old Savage, says he, acknowledged to me, that he had had that Distemper before the Europeans were known in his Country. Be this as it may, it is remarkable, that as this Disease has got Footing among them, they can rid themselves of it at Pleasure: Even though it be so inveterate, that the Patient is half rotten, and insupportable to be approached, he is, in a very short Time, perfectly cured without Return, unless owing to his own inconsiderate Debauchery. This speedy Cure is performed by Savages, who know nothing of Mercury: Nay, they look upon this Distemper as one of the easiest to be dealt with. Nevertheless, it is commonly thought impossible to prevail upon them to discover their Remedy, from a Notion, that if it were once known to any European, it would certainly lose its Virtue towards themselves. Being with Colonel *Johnson* *, his Affability encouraged me, to ask him every Thing about this Country and the Inhabitants. This Gentleman has lived among the Savages, by whom he is exceedingly beloved and respected; they even look upon him as their Father. He told me, that with no other Medicaments than Herbs, the Indians could quickly

* Now Sir *William*, Knight of the Bath.

quickly cure the Venereal Distemper, of which he mentioned several Instances. The Negroes, Men and Women, from the most shocking Condition, in ten Days Time, were so well recovered as to go to work, and have continued perfectly sound, and had Children. As he said he was not acquainted with the Herbs they made use of, I took the Liberty to entreat him to try if he could discover them by any Means. He objected, at first, the Impossibility of it; but upon my representing to him, that he was the only Person likely to obtain a Discovery, that would be acceptable to the whole learned World, as well as an important Benefit to the Public; he assured me he would do all in his Power to bring it to Light.

Upon this, I presumed to insinuate to him some Hints, whereby he might prevent being imposed upon. As he knew Women who were likewise Mistress of the Art, I advised that he should prevail on two or three of them, separately, to produce the Herbs, without one knowing what he had enquired of another about; and that he should not be satisfied with the Leaf or Root, but persuade them to bring the whole Herb; and, if it might be, to procure a Sight of it growing.

Not to go into a long Detail of the Trouble and Expence he was at; the Upshot was, that three Women told him of the very same Plant, and agreed in their Account of the Method of Cure. Besides these, a Man who was a famous Practitioner, and had given incontestable Proofs of his Skill, shewed him the Roots of the same Plant, and said, *This is commonly used*; but added, that *he made greater use of another Root, the Virtue of which, together with the Manner of administering it, he learned from his Grand-father.*

The Account of the Herb is as follows.

In *North America* there are five different Species of *Lobelia*, of which the chief Herb used for this Distemper, is one.

I cannot say, whether this Plant has been before described by others, nor do I know, in case it has been already described, under what Denomination. I will therefore give a Description of it, so that in a Collection of botanical Books, one may easily know, whether it has been described or not; and Botanists, being mostly accustomed to Latin Expressions, I shall give the present Description in that Language.

Gaulis simplex (interdum tamen Ramos emittens) erectus, diversæ Longitudinis ab 1 ad 4 Pedd. communiter tamen ab 1 ad 2. Teres, glaberrimus, levis, subnitidus, pallidæ viridis aut interdum rubescens, præcipue versus inferiorem partem foliatus; Folia usque ad spicam Florem gerens.

Folia

Folia duplicitis generis: radicalia scilicet primo Anno, caulina vero Anno secundo primum prodeuntia.

Folia radicalia, ovato-lanceolata, subacuta, crenatophiata, glaberrima, utrinque subnitida, obscure viridia cum tinctura Purpurei, in petiolas desinentia.

Folia caulina per totum Caulem sparsa, ovato-lanceolata, subacuminata, inequaliter dentata, patentia, plura, glaberrima, subnitida, in Petiolas desinentia; ad Margines puncta albida tantillum elevata sunt; quid quod ipsi Denticuli ejusmodi Puncta albida elevata gerant; Nervi in inferna Folii superficie longitudinales elevati.

Rudimenta Florum ad Alas inferiores.

Flores superiorem Partem Pollicis occupant; Pedunculis 2 vel 2 $\frac{1}{2}$ Linear. Longit. insidentes; quivis Flos sedet ad Alam, Folioli lanceolati, acuti, serrati: Serraturis sublatis.

Flores fere erecti, magni, cærulei, Magnitudine vix floribus Lobeliae, Flos cardinalis alias dictæ, cædentes.

Calicis laciniae lineare acutæ, longæ scil. 5 ad 8 Linear; Marginibus prope Basin retrorsum flexis.

Reliqua Floris sunt Lobeliae. Vide characterem in LINNÆI Gen. Plantar.

Upon breaking this Plant, a milky Juice issues from all the Parts of it. An old Stem has frequently a great Number of Roots resembling those of a green Sod.

The large Leaves on the Stem, are between four and five Inches long, and an Inch and a half in Breadth. The lower Leaves of the Stem, are frequently *Folia lanceolata-ovata*.

The lower Leaves fall first from the *Stylus*. Frequently several Stems arise from a single Root. Some Stems are half an Inch in Diameter.

Towards the End of Autumn, the Leaves are full of brown Spots.

The Plant begins to be in Bloom about the 21st of July; and it's Seeds are ripe in the Beginning of September.

It grows in damp marshy Places on the Sides of Moats, Brooks, and Rivers, and near it the *Eupatoria*, *Lycopus*, *Bidens*, *Mimulus*, *Chelone Acadiensis*, *Helxine Caule tetragono aculeato*, *Persicaria urens*, &c.

The Taste of the Root seemed to me not unlike that of Tobacco. It remains a long Time in the Mouth, and excites vomiting.

Such is the *Lobelia*, the sanative Plant with which the wild Indians so speedily check and subdue the Virulence of the Pox. The Cure is very simple, as all their Cures are, and performed in the following Manner:

They take the Roots of four, six, or more Plants, after the Distemper has been deeply rooted, and cleanse them. Many take

take fresh Roots ; whilst others say, that the dried are better, having used, with all desirable Success, Roots that have been dried three Years and upwards. These Roots are boiled. It is all alike to the Savages in what Vessel, for they have no other than Copper and Tin Kettles, in which they always boil their Medicines.

Early in the Morning, upon his awakening, they give the Patient the Decoction, of which he is to drink as much as he can ; and the remaining Part of the Day it is his chief Drink. Afterwards he begins to purge pretty much ; and if the Decoction is found too violent in its Operation, it is lowered. In the mean Time, he must drink nothing strong, and confine himself to a simple Sort of Food, especially Vegetables, though, according to the Case, they are frequently allowed to eat Meat.

The second and third Day, he continues drinking this Decoction, and afterwards, not only drinks it every Day, but he washes and bathes with it the Parts most effected. This Method, in about a Fortnight or three Weeks at the utmost, puts a total End to the Distemper.

If the Patient be full of Boils, during the Cure, they usually dry them up with the Roots of *Geum Floribus nutantibus, Fructu oblongo, seminum cauda molli plumosa*. LINNÆI Flor. Suecic. 424. which, in this Country, grows in damp Places. The Root is dried and pulverised, and the Powder being strewed over the Ulcers, dries them up. But if the Distemper be very deeply rooted, and no Amendment appears, after using the Decoction of *Lobelia* for some Days, they call in the Root of *Ranunculus Foliis radicalibus reniformibus crenatis, caulinis digitatis petiolatis*. Gron. Fl. Virgin. 166. washing it clean, and mixing some of it with the *Lobelia* ; then having boiled it, give the Patient the Decoction to drink. Great Care is required in the Proportion of this *Ranunculus*, lest it cause Inflammation in the Bowels. This Decoction purges violently, causes Vomitions, and is immediately seen to affect or accelerate the Cure ; but if too strong, it becomes poisonous, as does likewise the Root of *Angelica Canadensis purpurea*, which is used by the Savage Women, when turned away by their Husbands, in order to destroy themselves.

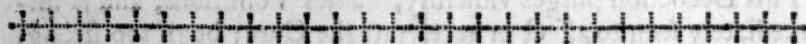
Another Savage, noted for his Skill in curing the Pox, by whom Col. Johnson was assured, he had fairly imparted to him the Method which he used, added, that he had now and then given the *Lobelia* ; but however, he confided more in another Remedy, namely, the Roots of *Ceanothus Linnæi*, or *Celastrus inermis, Foliis ovatis, serratis, trinerviis*, Linnæi Hort. Cliff. 73. Gronov. Fl. Virg. 25. He performed the Cure with this Decoction,

coction, in the same Manner as that of the *Lobelia* is used. The Decoction is as red as Blood. When they are afraid that the Malady is too deep rooted, they take the Roots of the *Rubus Caule aculeato, Foliis ternatis Linn. Flor. Suec. 410.* and mix some of it with the first.

I was afterwards so fortunate as to meet with one, who some Years ago, had been cured by the Savages, of this Malady, when in a very desperate Condition. He had by him a Handful of dried Roots, together with the Root-leaves of the Plant, which the Indians had employed in his Cure. They were all of the aforesaid *Lobelia*.

With this Plant, such extraordinary Cures have been performed in this Country, as scarce any where have been effected by Mercury. But the Difference is, that in the Savage Method, there is no risk of Life; not a single Instance being known of an Indian dying of this Distemper, or of any Patient, whatever Progress the Disease had made in him, who died under their Cure: No Example of one in whom it has failed. They whose Misfortune it has been to undergo two Cures, one Mercury, and another by this Plant, agree, that the Cure by the Plant, is much milder and speedier.

I thought myself obliged to publish what Knowledge I had of the Benefit of this Root, as a safe and easy Remedy for this loathsome and dangerous Distemper. As Children, and other innocent Persons are liable to the Infection, surely there must be some Merit in endeavouring to save their Lives, and restore them to their natural Vigour, in the easiest and safest Manner. The skilful Physicians will, I promise myself, strike out some shorter and better Method of using this Plant; the wild Americans being not in the least acquainted with the Theory of Phylic. All I could do, was to give a true and clear Account of what I had heard and seen.



Of the C R O U P.

(To follow the Article of the RICKETS, Vol. II. Page 282.)

THREE is one Disease which entirely has escaped all regular Examination; and concerning which, there is little to be learned from Enquiry, and still less from Books; I mean the CROUP. The *Catarrhus Suffocatus* of *Etmuller*, though it resembles it in many Particulars, yet appears to be a very different Disease in some Symptoms, in the Cure, and in Appearances after Death.

Dr.

Dr. *Russel* describes, in a few Lines, a Disease very similar to this in most of its Symptoms: But it seems not exactly the same, as it was attended with Ulcers about the Larynx, and terminated often in a Sphacelus of the Lungs: Besides, had it been the same Disease with our *Croup*, the same Appearances must have occurred to him in the Dissection, which was otherwise.

This Disease happens, or at least is observed, so seldom in this City, (*Edinburgh*) that very few Cases must occur to any particular Person, during the Course of a whole Lifetime. To have the Power of seeing more, one must put himself in the Way of Intelligence, especially at Places situated on the Coast. By that Means, I have had the Opportunity of attending more Cases, in a short Space of Time, than otherwise would have fallen to the Share of any one.

The Danger of the Symptoms, under such apparent Ease, and the singularity of its Appearances after Death, in the first Examination, excited my Curiosity; and the subsequent Cases were sufficient to shew me its Nature, though perhaps not to point out a *certain* Cure, which is not always allowed to Mortals. To be able, however, to distinguish it from other Diseases; to discover the Nature of it; to point out when it is cureable, and when not; perhaps to lay a Foundation for Improvement, in the most desperate State, is my Design.

This Disease appears to belong peculiarly to Children; and the younger they are, after they are weaned, the more liable they seem to be to it; or, (which is very probable, as they cannot tell their Complaints) it is taken for some other Disease. I never saw or heard of one above twelve Years of Age affected by it. After this, the body acquires a strength capable of resisting the Cause, and of expelling it when received. About this Time, or a little after, very great Changes happen in the human Frame. It seems likewise to have a local Situation, in a great Measure; and to be seldom found at any great Distance from the Sea-shore, appearing much less in *Edinburgh* than in *Leith* or *Musselburgh*. It is often seen along the Coast of *Fife*; and is very common, I am told, along the Coast *Airshire* and *Galloway*. Though I never heard of it in the neighbouring Coast of *England*, yet probably it is to be found there too *. The same Causes which kept it so long from be-

* A little Boy near three Years old, died of it in an inland Part of *Kent*, near *Bromley*, this last Summer; though attended by a Physician of Eminence, who, perhaps, had been called in too late; the Symptoms were all very distinct.

ing attended to here, may still make it neglected there. Very wet and marshy Situations sometimes produce it.

From twelve several Cases, nine of which proved mortal, and the Bodies afterwards dissected, I have been enabled to establish many material Facts and Circumstances, that have been hitherto unknown, with regard to this Disease ; and shall now draw from them some Conclusions, which, as I have proceeded so cautiously, will be the more certain. If I add any Reasoning, to set these Conclusions in a clearer Light, I shall keep as close as possible to settled Experiment ; and shall give it only as probable Conjecture, finding Fault with nobody who may Reason differently.

CONCLUSIONS.

I. IT seems easy, in general, to distinguish the *Croup* from all other Diseases hitherto described. A peculiar sharp, shrill Voice, not easily described ; a remarkable Freedom from all Complaints, when in imminent Danger, so that they will eat the Minute before they expire ; a quick laborious breathing ; a frequent Pulse, sometimes strong at first, but always soft and weak towards the end ; scarce any Difficulty of Deglutition, or remarkable Inflammation in the *Fauces* ; a dull Pain, often, and sometimes an external Swelling in the upper Part of the *Trachea* ; Senses quite distinct to the last ; and all the Symptoms most rapid in their Progress, characterise sufficiently this Disease. I have not mentioned a Cough, as that Symptom is sometimes absent ; and when it attends the *Croup*, it is not of the common Kind, but more short and stifled, and less convulsive, with little or no Expectoration.

As this Disease has different vulgar Names, for I am told, that on the West Coast, they call it the *Chock*, or *Stuffing*, a technical one becomes absolutely necessary. A Name is best given from the apparent Symptoms, which are always conspicuous, while the Cause is generally hidden, and often doubtful. The leading Symptoms here, are, the shrill Voice, and difficult Breathing. It, therefore, may properly called *Suffocatio stridula*.

II. As it appears peculiar to a certain Age, and local, in a great Measure, as to its Situation, so it seems to attend certain Seasons of the Year. All the twelve Cases shewed themselves during the Course of the Winter, from the Month of *October* to the Month of *March*, except one in *August*, which was probably owing to the antecedent Small-pox : for long Catarrhs from the Small-pox, Measles, or Chin-cough, are strong dis-
ponent

ponent Causes to this Disease. The moist and cold Weather in Winter seems to have great Power in producing this Disease.

III. Very different have been the Opinions, with regard to the seat of the *Suffocatio stridula*, some placing it in the *Glottis* and its Muscles; some in the Coats of the *Trachea*; while others have fixed it's Seat in the Lungs themselves: None of these Opinions appear to be true. The *Glottis* is never found contracted or inflamed; the Lungs are quite sound; and the Coats of the *Trachea* seem to suffer only by second hand.

The Seat of this Distemper appears to be the Cavity of the wind-pipe. The Place first, and most particularly, affected, is the upper Part of the *Trachea*, about an Inch below the *Glottis*; for in that Part they complain of a dull Pain; the external Swelling has been observed there; and the morbid Membrane we have found stretching from that Place downwards. The back Part of the *Trachea*, where there are no Cartilages, seems, from the Inspection of those that die of this Disease, to be it's first and principal Seat, as this morbid Membrane is often found there, when it is in no other Part.

No wonder that the morbid Appearances are chiefly found there; for, there, are lodged the greatest Number of Glands, designed for the Secretion of *Mucus*. This fluid is separated from glandular Bodies, deposited betwixt the different Membranes, which are perforated by an infinite Number of almost imperceptible small Holes, that give a Passage to the excretory Ducts of these Glands. The largest of these lye on the Outer, and posterior Surface of that Membrane, which serves, on the back Part, to make up the Deficiency of the Cartilages, as they are not compleat Circles.

In some of the Cases, the whole Glands, at the Root of the Tongue, and the *Amygdale* were turgid, and the Parts covered with *Mucus*. In the mucous Glands, in general, this Distemper ought to be considered, as originally seated; but, from particular Causes, more directed to those of the *Trachea*; where, from the Nature of the Part, it becomes visible in a different Shape.

IV. Various have been the theoretical Opinions of People, who never had the Opportunity, or gave themselves the Trouble, to search into the real Cause of this Distemper. Some have attributed it to Spasms of the Muscles, that contract the *Glottis*. That it was not occasioned by Spasms of the Muscles, that contract the *Larynx*, might have appeared from the Symptoms themselves. Had this been of the Class of Spasmodic nervous Diseases, it would have come in Paroxysms, with Re-

mission

mission and exacerbation ; the Urine would always have been pale ; Convulsions would have come on before Death ; and Antispasmodics, instead of Evacuants, would have been the Remedies.

Had these Muscles, or any of the Coats of the *Trachea*, been inflamed or mortified, as others have thought, the Pain would have been greater than it is, before the Mortification ; and the Pulse would have been stronger than it generally is, as the Parts are Membranous.

If, according to the Opinion of many, the Lungs had been inflamed and suppurated ; the Cough would have been more incessant and violent ; the Pulse full and soft ; with a Sensation of Weight in the Breast, sify Blood, dry Tongue, and Delirium.

But all these fanciful erroneous Opinions fall to the Ground, when we once inspect the morbid Body. From that true Source of Knowledge, we learn, that the Cause of this Disease is a preternatural white, tough, thick membranous Crust, covering, often for many Inches, the Inside of the *Trachea*. This Membrane is of so tenacious a Consistence, that it can remain soaking in warm Water, for many Days, without dissolving. It is not attached to the Parts below, but is easily separable from them, as there is always Matter behind it. When it ends, the *Trachea* is covered with good *Pus*, or purulent *Mucus* ; as are, generally, the Ramifications of the *Bronchiæ* and Vesicles, which, in some Cases, were quite filled with it. To account how this Matter, as there is no Ulceration ; and how this Membrane is formed, we must trace Things from their Source.

The Blood consists of three principal Parts, the *Craffamentum*, *Serum*, and *Lymph* ; the last of which is a diaphanous Liquor, full of gelatinous and nutritious Particles.

The *Mucus* separated from Glands, in different Parts of the Body, *viz.* Nose, *Oesophagus*, Stomach, Guts, *Trachea*, and *Bronchiæ*, appears to be very analogous to the *Lymph*. The former differs from the latter, only, in its greater Spissitude ; and this Alteration is brought about after its Secretion, the more watry Parts being volatilized and dissipated, while the more heavy and viscous remain behind. This *Mucus* is extremely disposed to Inspissation, as appears from Experiments. Even the Admission of cold Air into the *Trachea* thickens it, often, to such a degree, that it stagnates in the Glands, and all Secretion is entirely stopt.

In Children, as well as in old People, this Secretion is plentiful, owing to the great Quantity of it they contain, and to the

the Laxity of their Vessels. This Evacuation is particularly increased during the cold and moist Weather of Winter, when the Perspiration is diminished, and the glandular Secretions increased. It is also promoted by all Stimulants, operating on the *Trachea* and Lungs.

The maritime Air supplies a *Stimulus*, calculated to increase the Secretion from the mucous Glands of the *Trachea* and Lungs. Along with the Moisture, swepted from the Sea by the Winds, is carried, likewise, a great Quantity of Sea-salt; as every Thing, at some Distance from the Shore, tastes salt. This inspired into the Lungs, stimulates the Orifices of the tracheal Glands, and increases the mucous Secretion. This Effect will happen more particularly in Children, as their Nerves are more irritable, than those of people advanced in Years. Hence we find, that, in moist Winter Weather, particularly along the Sea Shore, Children have an unusual Secretion of *Mucus*, from the Glands of the Wind-pipe. Diseases, such as the Small-pox, Measles, Chin-cough, &c. and other natural Causes, have the same Effect in increasing this Discharge. When these are combined, there exists the greatest Predisposition to this Disease.

When there happens a very great Secretion of this coagulable Fluid from the Glands of the *Trachea* in Children, they are either not sufficiently attentive, or often too young, to spit it up. The thinner Parts are carried off during Expiration, while the Remainder is thickened and compressed, by the Obstruction, that the Narrowness of the *Glottis* must make to the Exit of the Air from a larger Canal. Every Circumstance encourages it's Concretion into a solid firm Membrane, while the more internal Parts of the *Mucus*, continuing still fluid, and the continual Secretion of more, keep it separated from the Parts below.

But how happens it that we find pure Matter, which sinks in Water, behind the Membrane, and in the different Ramifications of the *Trachea*, when there is no Ulceration? Matter does not seem to be formed, as was generally thought, by the Vessels of the Ulcer, but to exist in the Blood; particularly in the serous and lymphatic Liquors, nearly in the same State; and to be, probably, the true nutritious, nay, perhaps, the coagulable Part of our Fluids.

There cannot be a fitter Situation, for the Formation of *Pus* from the mucous Secretion, than the *Trachea* and Lungs. There the same Secretion, Evaporation, Stagnation, and Heat exists, as in an Ulcer; and, therefore, the same Consequence

L should,

should, and does, happen. We often see real *Pus* spit up in the End of a Cold. Perhaps this Change from *Mucus* to *Pus*, happens before the Membrane is formed, as *Pus* shows such a Tendency to assume a solid Form, and is designed by Nature to repair all Deficiencies in the Solids.

This Disease now, appears of a very singular Nature, and unlike any other that we know.

I have lately met with a Description in the *Philosophical Transactions* abridged, Vol. III, page 68, Of a Membrane formed in the Inside of the *Trachea*. " " A Boy five Years old, died of a Consumption. A Year before his Death, he was troubled with a dry Cough, which continued ever after, spitting now and then, a little Quantity of Blood. Ten or twelve Days before he died, his Nurse took Notice of some thick Skins he spit up. His Physician, having examined one of them, found it had the Shape and Consistence of a Vessel, which made him think it might perhaps be some Vessel of the Lungs. The Child being dead, I opened the Body. In the left Side of the Lungs, I found a little purulent *Sanies*. The Inside of the *Trachea* was incrusted with a slimy Membrane, which I took off from the *Trachea* and the Branches in the Lungs; insomuch that that *Pellicula* made a perfect Vessel, from the *Larynx* to the very Extremities of the *Bronchia*, from which it came off very easily, without breaking either the Trunk or the Branches. It adhered to the inward Coat of the *Trachea*, only by some small Filaments, which were so tender, that they broke off easily; and made me think, the Production of that extraordinary Vessel was nothing but the mucilaginous Humour, continually discharged by the Glands of the *Trachea*, grown more clammy by the Distemper, and so dry that it could not be spit out; this incrusting the Inside of the *Trachea* and *Bronchia*, and growing thicker, was at last forced off by the violent Fit of coughing the Child was sometimes taken with, and then was renewed again by the succeeding *Mucus*. This new Vessel would not dissolve in hot Water. The Vessels of the Lungs, that is the *Trachea* and *Bronchia*, the pulmonary Arteries and Veins, were as whole as could be."

It appears, by the Dissection, that there was no Imposthume formed in the Lungs; and that the Child died from this preternatural Membrane. Perhaps, many of the *Polypus*'s, thrown up from the bronchial Vessels of grown up People, may have the same Origin. These Cases show, how apt the *Mucus* is to acquire a solid Form.

V. There appears, from the preceeding Facts, two very different Situations of the *Suffocatio Stridula*; the former more inflammatory, and less dangerous, the latter less inflammatory, and highly dangerous. In the former, the Pulse is generally strong; the Face red; Drought great; and they agree with Evacuations: In the latter, the Pulse is very quick, and soft; great Weakness; Tongue moist; less Drought; great Anxiety; and Evacuations hasten Death. The former may be called the Inflammatoey; and the latter, the purulent state.

These are two very different Stages of the Distemper, and must be carefully distinguished by the Practitioner, that he may know how to direct his Application; or, at least, how to form a just *Prognosis*, as he is, generally, not called till the Patient is in the latter Stage. If this Disease comes on with an old habitual Cough, or by slow Degrees, the inflammatory Stage will scarcely be perceptible.

If the Pulse is very soft and feeble, especially after being strong; or any purulent Matter comes up with spitting, vomiting, or coughing, which happened in some of the Cases; we have a Proof that the purulent State is, already, formed. Experience has taught me another Mark, by which I can distinguish these different States. I have observed, that the Urine, which, during the inflammatory State, is thin, had always, after the purulent State came on, a light ouzy purulent Sediment, such as People have from Matter collected anywhere, that has no Vent outwards.

No Wonder that the Matter is speedily absorbed, in this Situation, as it is contained in the *Bronchia* and Vesicles, and of course imbibed by the whole internal Surface of the Lungs and *Trachea*; a Surface infinitely greater than any *Imposthume* can have. Hence the Blood will be suddenly filled with it; and the Urine have that white purulent Sediment, which arises from Absorption of Matter.

In the latter Stage, we find the Membrane compleatly formed. Is it so in the former? I suspect that it has not yet got a firm Consistency; otherwise Evacuations would not have so sudden and salutary an Effect, as they produce in this Stage. Perhaps, the turgid and inflamed Glands are but yet expelling the thick *Mucus*, which is circulating through the Vessels in too great a Quantity, and in too inspissated a State. This is strongly confirmed by the great Quantity of *Mucus* found in the Stomach, and the swelling of the mucous Glands at the Root of the Tongue. Even after Death I perceive some Degree of Inflammation in the Coats of the *Trachea*, which probably had been greater at the Beginning, when

the Flux of Humour commenced, and the Irritation was stronger.

VI. It seems to be no very difficult Matter to account, from the Cause, for all the Symptoms of this Disease. A straitening of the *Trachea*, and dryness of the Parts, will mechanically alter the Voice, and make it more shrill; for we find in all Wind-Instruments, the Notes are acute in Proportion to the Smallness of the Bore. Mr. *Balfour*, Surgeon, told me, that he attended a Child in a Disease, which, from the Similitude of Voice, appeared to him the Croup. The Child died. When opened, a Piece of Shell, which the Child had sucked in with it's Breath, was lying across the *Trachea*, about an Inch below the *Glottis*, and the Membrane was inflamed and dry. Here was an artificial Croup raised, from which we may evidently perceive, how the Voice is altered in the natural Disease.

When there appears to be a great Quantity of *Mucus* circulating in the Vessels; when there is, often, so much *Mucus* or *Pus* in all the Pipes of the Lungs; when there is a preternatural Membrane formed in the *Trachea*; no wonder that Nature excites a Fever, her general and constant Resource, when she is violently attacked and in Danger.

Considering the Acuteness of the Fever; considering the Obstruction in the *Trachea*, *Bronchia*, and Vessels; with what Difficulty the Air must gain Admission to distend them; and what Hindrance that must give the Blood circulating through the Lungs; a laborious breathing must, necessarily, attend the other Symptoms.

As the Blood passes with some Difficulty through the Lungs, an unusual Weakness must certainly come on, the Face become swelled, and the Extremities appear oedematous.

To account for the total Want of Pain, or so slight-a one that they do not attend to it, unless when asked, is a Matter of some Difficulty. That the Membrane of the Wind-pipe, in general so very irritable from every slight Cause, should calmly bear the Presence of such a Quantity of Matter, and of so thick a Membrane, is not the least surprising Circumstance of this uncommon Distemper. The *Mucus* being a Humour natural to these Parts; it's slow and gradual Collection and *Insipillation*; fresh *Mucus* constantly separated, which hinders the Membrane from hurting the *Trachea*, unless in Motions of the Neck; these Reasons may account, in Part, for the Diminution of that natural Irritability, which resides in these Places. But they do not satisfy me altogether.

VII. This Disease appears, in general, to be a very dangerous one, and the more so, as it is silent in it's Progress, and gives no visible Alarm, till Death is near at hand. The the first Stage of it, often, passes unobserved ; and, before we see it, is beyond all Remedy : And as it happens frequently to young Children, who are unable to speak or describe their Feelings, we have double Reason to be afraid.

If we be not called till the third or fourth Day ; if the Breathing appears much affected, the Pulse quick and weak, the Face red, great Anxiety, and frequent tossing, the Danger is great and pressing. But if we see the Patient the first or second Day of the Attack ; if the Breathing is not very bad ; the Pulse, though frequent strong and firm ; and more especially, if the Voice is only altered, in it's stronger Exertions of crying or coughing, but more natural in it's common State, we may entertain Hopes of a Recovery. The first Sign commonly of Safety, is the Cough becoming stronger and less dry, with that peculiar Sound which attends moistened Lungs ; for this shows that the Membrane is not formed, or is already dissolved, and that the inflammatory State is abated.

The Case seems very desperate, when the Membrane is once formed, and the Lungs filled with Matter. In the latter Case, the Patient is soon suffocated ; as effectually, though more slowly, as if he was immersed over the Head in it.

It appears, from the preceeding Cases, that the Membrane, alone, is sufficient to kill, as there was but little Matter found in the Lungs of some of them.

Desperate as the Case is, the Patient's Recovery is, perhaps, not altogether impossible. Nature, by the Means of a critical Cough, may eject the Membrane and Matter ; though, indeed, the Sensation of these Parts, by which it must effectuate this, seems almost altogether destroyed. If that should happen, the Patient would recover, as the Lungs are quite sound.

In one of the Cases, part of the Membrane was thrown up, but the Patient died. I was told by Mr. *Gibson* Surgeon, that a Patient of his escaped, after throwing up a great Quantity of Matter, and coughing up large Pieces of a Membrane.

The following curious Case was communicated to me, lately, by Mr. *Rae*, Surgeon. A Boy betwixt five and six Years of Age, was seized, August 5th, 1764, with a slight Cold and Hoarseness. On the 8th, had a Difficulty of breathing, the shrill Voice, and a little Fever. As the Boy was in a natural Sweat, he ordered a Mixture with *Spt. Minder.* 9th, Pulse quicker, and no Expectoration. Was bleded ; got an Injection, and had a Blister applied to his Throat. 11th, This

This Morning he was told, that, after a severe Fit of coughing, a membrane-like Substance, about two Inches long, pretty tough, and resembling a Piece of thin white Leather, had been thrown out. In the Evening, some *Pus* was observable in the Phlegm expectorated up, and easily distinguishable from it. The Boy did not recover his Voice for three Months.

Art, though not in the Way of internal Medicine, may attempt effectuating the same End.

VIII. We have had Occasion to see, in the twelve Cases, great Variety of different Applications, and their good or bad success. Let us deduce some general Rules with regard to Practice. In the inflammatory State, Bleeding appears to have been attended with immediate good Effects, and to be a powerful Remedy in this Stuation. This ought to be done expeditiously and plentifully, while the Pulse will allow it. It is best to take Blood at first, with the Lancet, so that a sufficient Quantity may soon be drawn off; and, afterwards, by Leeches, applied to the upper and fore Part of the Throat. Their Orifices, when kept open by the Application of warm wet-cloths, will allow the Blood to ouze from them for many Hours.

It seems necessary to keep the Patient's belly constantly loose, by such Medicines as Children will take; for we ought to be very attentive not to set them a-crying, as that may suddenly suffocate the Child. For this Purpose, I generally use Tablets of *Magnesia Alba*, made palatable with Sugar. Some of the cooling resolvent Salts: Such as the chrystalised *Sal Polychrest*, dissolved in Whey, will be of Service, provided the Patient will peaceably take them.

Blisters, applied round the Neck, after the Vessels are well emptied, do great Service. They seem to do none, when applied before this Time; nay, if the State is very inflammatory, must do much hurt, from their violent *Stimulus* on the Vessels. Emollient Fomentations and Cataplasms, applied round the Neck, are of considerable Use, and keep up a local Evacuation.

These Evacuations operate in several different Ways, *viz.* by thinning the dense *Mucus*, while yet circulating in the Blood; by diverting its Flux from the Parts affected, as there is a great Communication and Consent betwixt the different *mucous* Glands through the Body; but, particularly, by increasing the absorbent Power of the Vessels on emptying them; by which Means the purulent Matter will be sucked in from the Lungs. It was found in the Urine of one of the foregoing convalescent Patients.

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The resolvent and gently stimulating Steams of warm Water and Vinegar, drawn in with the Breath, seemed always to have an immediate good Effect. Is it from dissolving the thick *Mucus*, and so opposing its Concretion? That is probably the Case, as the Patient always spits a great deal after it, and the Lungs appear moister.

Vomits are, frequently, given in this Stage of the Disease. They are, generally, thought to be of Use; but I never saw any Advantage arising from them. I rather suspect that they must be often pernicious, as they increase the Secretion of *Mucus* in the Lungs, without expelling it, which is the very Circumstance that, if possible, we ought to guard against. The Evacuation that they make otherways is but small.

Gentle sudorifics may be of Service, as they divert the Flux from the more internal Parts to the external. Others think that these are of Use; and prescribe the *Vin. Emet.* in small Quantities. I cannot say that I ever saw any great Advantage from them.

But when the Membrane is once formed, or the purulent Matter, in great Quantity, collected in the Lungs, Evacuations can be no longer of any Use; they rather hurt, as the Pulse is then weak. Hence the Reason, why People differ about the Effects of Evacuations in this Disease; some deeming them the only certain Remedy, while others hold them to be destructive. Both have built their Opinion on Facts and Observation. But as their Applications were made in different Stages of the Distemper, the Effects must have been different. What was the only Remedy in the inflammatory State, must appear hurtful in the purulent.

In this State of Purulency we plainly see, that nothing can do Service, but what brings up the Matter from the Lungs, and that speedily too. And what Medicines can do this? Vomits only evacuate, immediately, the Stomach; but, by Means of the Sympathy of the Nerves, they often bring on Coughing, during their Action. They might be of Service, if they had this salutary Effect; but I never saw them answer this Purpose, though often given with that Design. The Nerves are, indeed, so unactive, that we can entertain no reasonable Hopes from this Quarter.

Shall we endeavour to excite a Cough, by the Means of Effluvia, or Steams inspired into the Lungs? That has been tried to no Purpose; for the Membrane which covers the *Trachea*, and the *Mucus* or Matter which covers the Lungs, render these Parts insensible to any external Irritation.

To effectuate a Solution of the morbid Membrane, after it is once compleatly formed and consolidated, seems to me impossible by any internal or external Medicine that I know. To effectuate its Expulsion appears equally impossible. We have, then, no Method remaining to save the Patient's Life, but that of Extraction. That cannot be done through the *Glottis*. When the Case is desperate, may we not try *Bronchotomy*? I can see no weighty Objection to that Operation, as the Membrane can be so easily got at, and is very loose. Many a more hazardous Operation is daily performed. I would propose, however, that it should be first tried on a dead Subject, that we may proceed with all Manner of Caution and Assitance. But something ought to be tried in this dangerous Situation.

We have now brought our Inquiry to a Conclusion. The Method is such as is used in Mathematics and Natural Philosophy, for discovering unknown Truths; and the Conclusions new, and naturally arising from the Facts. If I have not wrought it up to that Degree of Perfection, in every Point, that I could have wished, I have the Satisfaction, at least, to think, that, so far as I have gone, my Discoveries are certain, as they are built on the Foundation of Nature. Shunning, with all imaginable Care, fruitless and deceitful Speculations, however entertaining, I have constantly kept my Facts and Experiments in view, as the only Road to the Improvement of Medicine, and the good of Mankind. HOME.

F I N I S.

E R R A T A,

Page 4, line 20, for *Phlegmous*, read *Phlegmons*. l. 21, for *Oedamata*, read *Oedemata*. p. 10. l. 32, for *t* read *it*. p. 11, l. 39, for *pulmenary*, read *pulmonary*. p. 15, l. 5, for *Chhange* read *Change*. p. 17, l. 15, for *Hypotheses* read *Hypothesis*. p. 19, l. 32, for *Phisiology*, read *Physiology*. p. 21, l. last but one, for *his* read *this*. p. 33, l. 15, after *died*, read *of*. p. 34, l. 15, for *whose* read *which*. l. 23, after *applied*, read *it*. p. 44, l. 31, for *Pirera*, read *Pera*. p. 58. l. 33, for *Verote*, read *Verole*. p. 59, l. 11, for *Contractions* read *Contradictions*. l. the last, for *if* read *of*. p. 60, l. 19, *strike out* it. p. 62, l. last, for *this of*, read *such*. p. 64, l. 18, for *Vesiatories*, read *Vesicatories*. p. 67, l. last, for *Florum*, read *Florum*. p. 68, l. 5, for *petioles*, read *Petiolos*. p. 70, l. 18, for *one Mercury*, read, *one by Mercury*. p. 72, l. 35, for *may*, read *may be*.